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Connecticut Medicine

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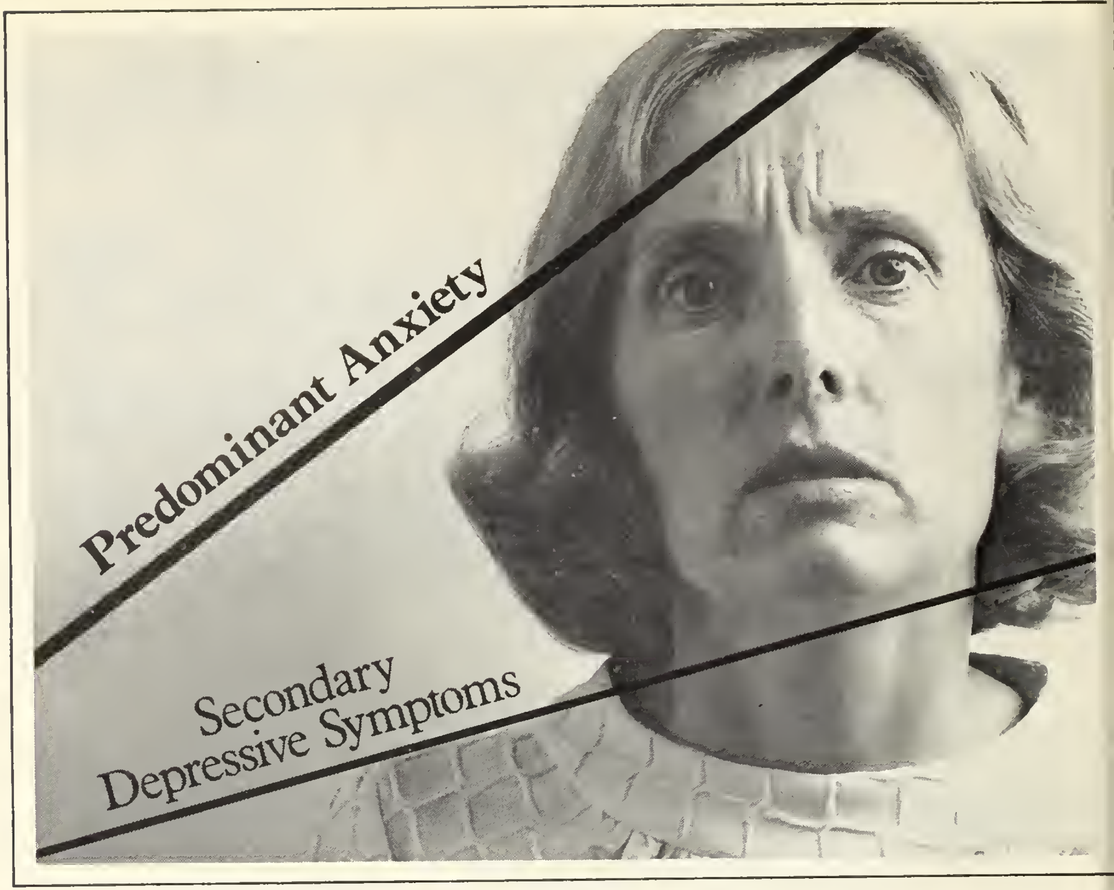

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Chemotherapy of Advanced Ovarian Cancer

Murray Joseph Casey, M.D.

Accord prevails amongst gynecological oncologists that antineoplastic chemotherapy is of value in the care of many patients with advanced ovarian cancer. Properly used, chemotherapy is credited with diminution of symptomatic tumor masses, control of ascites, and betterment of well-being, affecting significant response in 30 to 60% of the patients treated in several recent series.[1-9]* Commonly accepted terms which may be used in evaluation of the results of drug therapy are needed. Six simple definitions are offered (Table 1). In view of the many experimental drug protocols now in progress and often fragmentary, premature and sometimes conflicting reports issuing from some studies, a concise summary of presently available, well-documented data is in order.

TABLE I

TERMS USED IN EVALUATION OF RESULTS FROM DRUG THERAPY OF OVARIAN CANCER:

1. *Objective response* is 50% reduction in the size of tumor mass measured by inspection, palpation or roentgenography, control of ascites and symptomatic improvement sustained for a three month period during which no new tumorous lesions develop.
2. *Nonresponse* is failure to effect a response on the basis of drugs given according to the planned regimens during at least a three-month period.
3. *Relapse* is an objective response followed by recurrence of the tumor any time after the three months necessary to complete an objective response.
4. *Therapeutic failure* is discontinuation of drug therapy for any reason (death, toxicity, loss to followup, etc.) prior to completing the planned course of treatment, and the reason for failure should be noted.
5. *Subjective response* is based on the patient's statement of well-being and improvement in symptoms following commencement of drug therapy plus evaluation of "Performance Status" (PS) according to the criteria suggested by Karnofsky.[28]
6. *Control of ascites or effusions* should be noted and documented in terms of intervals between paracenteses and amounts of fluid removed, roentgenographic and physical measurements, and maintenance of serum albumin, protein, and electrolytes, as well as a statement of Performance Status.[28] Control of ascites or effusions will often be accompanied by other evidence of objective response.

The syndrome, ovarian cancer, is not a single entity. Rather, this syndrome is a multiplicity of neoplastic diseases arising from the ovary with different pathology, prognosis, and susceptibility to therapeutic modalities. A classification of primary ovarian neoplasms based on assumptions of ontogenesis is proposed (Table 2). Although there is currently no unanimity of expert opinion as to the cell origin of these tumors, the malignant forms within each category are remarkably similar in their pathological behavior and response to therapy.[8,10-20]

Alkylating agents are relatively effective in treating some ovarian tumors of epithelial origin.[2,3,5-7,9,21] 5-Fluorouracil, an antimetabolite, seems to be the next most effective drug in the treatment of ovarian cancer of epithelial origin[8,9,21-23]; although the responses may be few and the toxicity not insignificant.[6,9,23,24] There has been little improvement in response rates effected by employment of multiple agents, and the increased chance of severe toxicity does not warrant their first line use against ovarian tumors of epithelial origin.[7,8,9,24]

On the other hand, tumors of germ cell origin have responded poorly to alkylating agents alone[9]; whereas there is data to indicate that at least some of these tumors may respond to combined agents.[4,8,18,25] Therefore, a multi-drug regimen, such as methotrexate, actinomycin-D and chlorambucil, may be of value and the risks acceptable in treating advanced malignant germ cell tumors. Malignant granulosa cell tumors of sex-cord origin responded to alkylating agents alone and to combined drug regimens.[1,4,6,9,26]

There is probably little difference in the response rate of ovarian tumors of epithelial origin to the various alkylating agents.[2,7,9,21,24] Since some of the best results to the present time have been associated with treatment using phenylalanine mustard (PAM, L-sarcolysin, Alkeran)[6,9,26,27] and because of its ease of oral administration and low toxicity compared with other alkylating agents,[3,5,9,27] this drug has distinct advantages as the drug of choice for treatment of advanced ovarian tumors of epithelial origin. Phenylalanine mustard may also be administered intravenously,[9] but this form of the drug has not been released for general use. Cyclophosphamide (Cytoxan) is an effective,[2,3,7-9] but somewhat more toxic[3,4,6,7,21] alkylating agent which which may be of value after an initial response to PAM and then relapse.[9] This drug may be given by vein or by mouth. The frequent untoward effects of cyclophosphamide, hemorrhagic cystitis and alopecia. often are not well tolerated by women. Chlorambucil (Leukeran) is an effective [1,8,24] orally

DR. MURRAY JOSEPH CASEY, Assistant Professor, Department of Obstetrics and Gynecology, University of Connecticut School of Medicine, Farmington, Conn.

TABLE 2

ONTOLOGIC CLASSIFICATION OF PRIMARY OVARIAN NEOPLASMS*

- I. Epithelial origin
  - A. Serous
    - 1. cystadenoma (papillary cystadenofibroma)
    - 2. cystadenocarcinoma
  - B. Mucinous
    - 1. cystadenoma
    - 2. cystadenocarcinoma
  - C. Endometrial
    - 1. endometrioma
    - 2. adenocarcinoma
    - 3. adenoacanthoma
    - 4. "clear cell mesonephroma of Schiller"
  - D. Brenner tumor
  - E. Undifferentiated carcinomas
- II. Germ cell origin
  - A. Undifferentiated
    - 1. dysgerminoma (seminoma)
    - 2. gonadoblastoma
  - B. Differentiated
    - 1. embryonic
      - a. three germ layers
        - (1) mature
          - (a) benign cystic teratoma ("Dermoid")
          - (b) cystic teratoma with malignant transformation
          - (c) solid adult teratoma
        - (2) immature
          - (a) teratocarcinoma (embryonal teratoma)
          - (b) polyembryoma
      - b. mixed germ layers
        - (1) mixed mesodermal ("mixed Mullarian") tumor
        - (2) carcinosarcoma
      - c. specialized
        - (1) struma ovarii
        - (2) melanoma
        - (3) osteochondroma
        - (4) carcinoid ("argentaffinoma")
    - 2. extra-embryonic
      - a. choriocarcinoma
      - b. yolk sac tumor ("mesonephroma of Schiller," "endodermal sinus tumor," "polyvesicular vitelline tumor," "embryonal carcinoma")
- III. Sex cord origin
  - A. Female cells
    - 1. fibroma-thecoma-luteoma group
    - 2. granulosa cell tumor
  - B. Male cells
    - 1. arrhenoblastoma (Sertoli-Leydig cell tumor)
    - 2. hilus cell tumor
  - C. Mixed male-female cells ("gynandroblastoma")
  - D. Mesenchymal-sex cord tumors of indeterminate type
- IV. Extra-gonadal origin
  - A. Adrenal rest tumor ("hypernephroma," "clear cell tumor," "lipid cell tumor," "musculinovoblastoma")
  - B. Lymphoma

**See references 10-20.*

administered alkylating agent of relatively low toxicity.[28] Thio-TEPA is an intravenous alkylating agent with possibly more rapid action than those discussed above.[5,28] But thio-TEPA possesses significant toxicity[6]; so its first line use is being abandoned even in centers where it was used earlier.[29,30]* Intravenous agents must be used when the patient is suffering from intestinal obstruction. Cyclophosphamide and thio-TEPA may be of some value in these cases.[2,27] Some drug regimens which have been used in the treatment of advanced ovarian cancer and the toxicities of these drugs are listed in Table 3.

TABLE 3

SOME DRUG REGIMENS USED IN TREATMENT OF ADVANCED OVARIAN CARCINOMA

Single Drug Therapy

Alkylating agents

Phenylalanine mustard (PAM, Alkeran, L-sarcolysin, melphalan)

Dosage and administration: (adults)*

Oral: 2 mg tabs., 1 mg/kg in divided doses over 5 days, repeated at 4 week intervals after careful evaluation of response and signs and symptoms of toxicity.

Toxicity: bone marrow depression — platelet count must exceed 150,000/mm^3 and $WBC > 3000/mm^3$ immediately preceding each course; nausea, vomiting, allergic reactions occasionally occur.

Cyclophosphamide (Cytoxan)

Dosage and administration: (adults)*

Intravenous: 8 mg/kg/day x 5 days repeated at 4 wk intervals after evaluation of response and signs and symptoms of toxicity.

Toxicity: bone marrow depression; nausea, vomiting, hemorrhagic colitis; severe, even fatal hemorrhagic cystitis; transient alopecia; rare nephrotoxicity.

Chlorambucil (Leukeran)

Dosage and administration: (adults)*

Oral: 2 mg tabs, 0.1 - 0.2 mg/kg/day x 3-6 weeks until WBC 3500, then repeat courses at 6 week intervals.

Toxicity: bone marrow depression, nausea, vomiting.

Thio-TEPA

Dosage and administration: (adults)*

Intravenous: 0.6 - 0.8 mg/kg in divided doses over 2-4 days, repeated at 2-4 week intervals.

Toxicity: severe bone marrow depression — red cells, white cells and platelets; nausea, vomiting, diarrhea, intestinal perforation; dizziness, headache, dysphagia; fever, skin rash; hyperuricemia with nephropathy. In patients with previous radiation, chemotherapy, renal or hepatic disease, use with extreme caution and only when there is clear indication to take the additional risk of toxicity.

5-Fluorouracil

Dosage and administration: (adults)*

Intravenous: Initial course 12 mg/kg/day x 4 days, *not to exceed* 800 mg/day; if no toxicity, continue with 6 mg/kg/day on alternate days for 4 more doses unless toxicity develops. Dose should be halved in poor risk patients. Repeat dosage of initial course every 4-6 weeks.

Toxicity: stomatitis, esophagopharyngitis, nausea, vomiting, diarrhea, gastrointestinal ulceration, bone marrow depression. Contraindicated in patients with azotemia and impaired liver function.

Triple Therapy with anticancer antibiotic, alkylating agent and antimetabolite*

Actinomycin-D (Dactinomycin)

Dosage and administration:

Intravenous: 10 microgm/kg/day, *not to exceed 0.5 mg/day,* x 5 days

Toxicity: bone marrow depression, stomatitis, nausea, vomiting, diarrhea, gastrointestinal ulceration, bullous dermatitis, photosensitivity especially in areas previously irradiated, pruritis and rash, alopecia and loss of nails.

Chlorambucil (Leukeran)

Dosage and administration: oral 2 mg tabs, 6 mg/day x 5 days

Toxicity: bone marrow depression, occasional nausea and vomiting.

Methotrexate (Amethopterin)

Dosage and administration: intramuscular 15 mg/day x 5 days

Toxicity: bone marrow depression, stomatitis, nausea, vomiting, diarrhea, gastrointestinal ulceration; occasional alopecia; dermatitis, especially acne, pruritus and depigmentation; precipitation of diabetes mellitus rare neurological disturbances secondary to hemorrhage into CNS; severe acute hepatotoxicity; contraindicated in patients with azotemia or impairment of renal or hepatic function.

**Previous chemotherapy and radiation therapy must be assessed as to dosage and response, and the planned regimen of chemotherapy abbreviated when indicated.*

Prior to administration of each dose of antineoplastic drugs, careful history must be taken and signs sought for the earliest evidence of toxicity. Before a course of drug, the extent of disease must be delineated, and baseline BUN, creatinine, SGOT, alkaline phosphatase, and CBC with platelet counts must be obtained and examined. Other determinations, such as serum uric acid, proteins, calcium or LDH, may also be indicated.

The alkylating agents, antimetabolites, and antitumor antibiotics all are effective through their cytotoxicity. There is frequently a very narrow margin of safety between the dose necessary for the destruction of tumor cells and that which can cause serious, sometimes irreversible, damage to normal tissues and organs. The untoward side effects of radical chemotherapy may be just as serious as those of cancer surgery or radiation therapy. These drugs should, therefore, be used under the supervision of an experienced oncologist.

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Current Concepts in the Outpatient Treatment of Depression

Julian Lieb, M.D., and Myrna M. Weissman, M.S.W.

Abstract — Depression has recently received a considerable amount of publicity. It is an extremely common disorder and it occurs at all levels of society. This paper will briefly review current concepts in the outpatient treatment of depression.

The Clinical Phenomena

The term depression covers a wide range of phenomena. It refers to the normal mood of sadness or may designate a pathological symptom. Clinically significant depression usually presents with a patient who looks depressed, who complains of "the blues" or of feelings of hopelessness, helplessness or worthlessness, and who has some physiological concomitants of depression such as insomnia, diminished appetite with weight loss, constipation and reduction in sexual interest.

Gastrointestinal disorders, menstrual irregularities, obscure pain, and hypochondriacal concerns may mask an underlying depression. In an effort to cope with depressed feelings many persons resort to alcohol or drugs, while others "act out" these feelings by child beating,[1] extramarital affairs, antisocial behavior, and by suicide threats and attempts.

In depressive psychosis the mood disturbance is profound. Such patients have delusions of guilt, worthlessness, impoverishment or sin often accompanied by somatic delusions in which a patient may believe that his brain has turned into dust or his body is filled with poison. Anorexia, weight loss and sleep disturbance are severe.

In the depressed phase of manic-depressive illness, patients may exhibit less insomnia and anorexia, but more anergia and frequently hypersomnia.

Evaluation of Suicide Potential

Of paramount importance in the assessment of the depressed patient is a thorough evaluation of suicide risk. Two myths that we wish to dispel are that the patient who talks about suicide never attempts it, and that inquiring about suicidal ideation might instill such thoughts in the patient.

In assessing suicide risks, one asks, "Have you felt in the last week that life is not worth living?" If the answer is in the affirmative, one then asks, "Have you wished you were dead?" and, "Have you made a plan and are you thinking about suicide now?"

Factors increasing suicide risk include:[2]

1. Psychosis, particularly schizophrenia.
2. Previous suicide attempt or attempts.
3. Chronic disease, notably tuberculosis, venereal disease and cancer.
4. Recent surgery or childbirth.
5. Recent loss of a loved one.
6. Alcoholism.
7. Drug dependence.
8. Homosexuality.
9. Male over the age of 40.
10. Family history of suicide.
11. Social isolation.
12. Severe insomnia.
13. Severe depression.
14. Unemployment and financial difficulty.

A combination of suicidal ideation with any two of the above would constitute a serious risk, requiring psychiatric consultation and frequently hospitalization.

Management

When the symptoms are mild, of recent onset, don't interfere with normal functioning, and particularly when there are only mild somatic components, the patient can be managed by the generalist. When the symptoms are intense, pervasive, and accompanied by suicidal ideation and significant somatic disturbance, the patient should be referred to a psychiatrist or to a psychiatric clinic. The following discussion is intended for the generalist who undertakes the treatment of mildly depressed patients.

The patient should be seen once a week for the first four weeks, bi-monthly for the following two months and monthly thereafter until there is complete remission of symptoms.

During the first four visits the patient should be reassured about the favorable prognosis of his illness. He should be encouraged to discuss issues

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DR. JULIAN LIEB, Chief Psychiatrist, Depression Research Unit, Connecticut Mental Health Center, 100 Park Street, New Haven, Conn., and Instructor in Psychiatry, Yale University School of Medicine.

MRS. MYRNA WEISSMAN, Assistant Professor in Psychiatry, Yale University School of Medicine and Co-Director, Depression Research Unit, Connecticut Mental Health Center.

important to him but should be discouraged from tormenting himself with angry self-recriminations or guilty ruminations. The latter should be interpreted to the patient as being symptoms of illness which will respond to the medication.

A therapeutic alliance between doctor and patient is crucial. If the patient senses that his doctor has a sincere interest in him and that he will be treated with warmth and genuineness rather than with scorn, criticism, sarcasm or condescension, recovery is likely to be accelerated. Vigorous remonstrations with the patient about his symptoms and exhortations such as "stop pampering yourself" or "what you lack is will power" are generally met with striking lack of success; these responses convey to the patient that the physician believes he is malingering or that he is a weakling, and serve to further increase his feeling of despair and isolation.

The patient should be told that it generally takes from one to two weeks for a clinical improvement to occur, and that the medication might cause some mild side effects such as constipation, dry mouth, increased appetite, and postural hypotension. It is important to emphasize that these side effects are seldom serious enough to warrant discontinuation of the medication, and that they will only last for as long as the medication is taken. To offset postural hypotension, patients should be instructed not to take their medication on an empty stomach, and to avoid sudden standing or strenuous exercise. A stool softener or mild aperient will usually relieve constipation, while chewing gum or hard candy can somewhat offset dry mouth. It is necessary to stress that the medication is not addicting, and that the time will come when medication is no longer needed. As with the use of all medications, it is advisable to caution women in the child bearing years to adequately protect themselves against pregnancy. Patients should be assured that their physician can be contacted at any time by telephone if their symptoms become worse or discomforting side effects develop.

A moderate to marked degree of improvement can be anticipated following the initial four weeks of treatment (acute phase). Thereafter a more vigorous psychotherapeutic approach focussing on problems at work or at home can be employed, the goal being to help the patient to cope more effectively. People who become depressed frequently have had lifelong difficulty in asserting themselves and in making decisions, and these difficulties become intensified with the onset of the illness. If the patient is helped to assert himself more effectively, to make decisions and to see some of the choices open to him, permanent benefit can accrue.

Depressed patients frequently become overdependent on their physician, so he should not become overly involved or too active as treatment progresses. Firmness, cool-headedness and the expectation that the patient gradually assume increasing responsibility will help the patient regain a sense of control and the ability to fend for himself.

The Family

The successful treatment of depressed outpatients may be dependent on the quality of the family's involvement. The outpatient living at home is constantly subjected to familial pressures and irritations. Unless the patient has made a dramatic suicide gesture or exhibits psychotic symptomatology, the family may not interpret the depressive symptoms as an illness. The family often has difficulty in perceiving the patient as sick, and reactions to the patient's decreased activity may range from direct accusations — "Why don't you get off your behind and do something?" — to more subtle messages such as "You ought to get a new job, take a course, get a hobby." In either case, the family's frustration and misinterpretation of the illness is conveyed. To some families, the hours spent at the doctor's office may be a mystery, an intrusion of privacy and a source of anxiety.

Although families of outpatients may be tolerant to a degree of the patient's decrease in performance, diminished communication and hopeless affect, daily confrontation with the patient's gloomy affect as well as the necessity for the family to assume some of the caretaking may foment additional conflicts.

In contrast to families of hospitalized patients who have little or no difficulty in perceiving the patient's symptoms as part of an illness, the families of outpatient depressives frequently are amazed to learn that the physician considers the patient a sick person in need of professional help and medication. This difference in perception has implications for the family's willingness and ability to involve itself therapeutically.

Families frequently have questions about the medication. The most common inquiries refer to the possible addictive qualities of the drugs used, and to whether the patient will have to take the medication indefinitely. At times, the physician may have to stress to the family the patient's need to continue taking medication after improvement is clearly evident. In cases of potentially suicidal patients, it may be necessary to ask a responsible relative to dispense the drug. In outpatient treatment, it is crucial to gain the patient's and family's confidence and cooperation. It is not unusual for the patient and family to become discouraged by the lack of immediate improvement which is often interpreted by the patient as further proof of the hopelessness of the condition. Conversely, when improvement does occur, the patient and his family may assume that the depression has been cured and may have considerable conflict about continuing medication fearing a possible dependency on it. In either case, the expected sequence of events should be discussed and the family and patient reassured about the delayed effects of the drug.

Acutely depressed women are often involved in marital conflicts and may also have difficulty caring for their children.[1,3,4] Such patients may require assistance with the care of their children and home while they are acutely symptomatic.

Drug Therapy

There are two major categories of antidepressants, the tricyclics and the monoamine-oxidase inhibitors (MAOI). The MAO inhibitors are used less frequently because of their potentially dangerous side effects. They should not be used as the first drug, except for the patient who improved with them during a previous depression. The MAO inhibitors may be used as a second choice for patients who fail to respond to tricyclic drugs.

The tricyclic antidepressants (amitriptyline, imipramine, nortriptyline, desimipramine, doxepin and protriptyline) are in widespread use. Clinical response generally does not occur before the first ten to fourteen days of treatment, but thereafter a steady improvement occurs. During the initial period, and before symptomatic improvement occurs, patients need considerable reassurance that their symptoms will diminish.

The commonly used antidepressants and their average daily dose ranges are shown in Table 1. Of these, Elavil and Tofranil are the most commonly used. These preparations are usually started at 75 mg. a day (25 mg. at 8:00 a.m. and 50 mg. h.s.) and in the absence of serious side effects are increased by 25-50 mg. weekly. Most patients are stabilized between 150 and 200 mg. per day, but some patients need 250-300 mg. per day before a good clinical response is achieved.

A patient's progress should be monitored in terms of improvement in his appearance, his verbal report about his symptoms and the response of the vegetative symptoms. Sleep and appetite normalization are the keynotes to successful treatment.

If a satisfactory clinical response is achieved with a tricyclic, then treatment should be continued on the current dosage for 2 - 3 months, after which time the medication can be tapered by 25 mg. decrements each month. Because of the danger of relapse it is crucial not to discontinue the medication prematurely or abruptly.

Dry mouth, blurred vision, increased appetite, hypotension and gastro-intestinal symptoms are the most frequently encountered side effects; extrapyramidal symptoms (dystonia, akathisia) and cholestatic jaundice occur rarely. Tachycardia, hypertension, arrhythmias and myocardial infarction have been reported. These drugs should not be used in the presence of heart disease, and patients over age 45 should have an EKG before commencing antidepressant treatment.

TABLE I

DESCRIPTION OF ANTIDEPRESSANT DRUGS

GENERAL GROUP	*GENERIC NAME*	*TRADE NAME*	*DAILY DOSE RANGE*	*TABLET OR CAPSULE SIZE*
Tricyclic Compounds				
A. Iminodibenzyls	imipramine	Tofranil	75-300 mgm.	25 mgm., 10 mgm.
	desipramine	Norpramin	75-300 mgm.	25 mgm.
B. Dibenzocycloheptenes	amitriptyline	Elavil	50-300 mgm.	50 mgm., 25 mgm., 10 mgm.
	nortriptyline	Aventyl	20-100 mgm.	25 mgm., 10 mgm.
C. Dibenzoxepins	doxepin	Sinequan	40-300 mgm.	10 mgm., 25 mgm., 50 mgm.
Monoamine-oxidase Inhibitors				
A. Hydrazines	phenelzine	Nardil	30-75 mgm.	15 mgm.
	isocarboxazid	Marplan	20-30 mgm.	10 mgm.
	nialamide	Niamid	50-200 mgm.	25 mgm., 100 mgm.
B. Nonhydrazines	tranylcypromine	Parnate	10-30 mgm.	10 mgm.

If, after 4 - 6 weeks on an adequate dose of a tricyclic antidepressant symptomatic remission does not occur, consideration should be given to the substitution of a MAOI.

E.C.T.

It is our conviction that E.C.T. is no longer the treatment of choice for depression and that it should be reserved for patients with deepening depression, particularly when the threat of suicide is a serious concern. E.C.T. may also be required if depressive symptoms have not responded to drug therapy after a reasonable trial.

Lithium Carbonate

It is now generally accepted that lithium carbonate is extremely effective in individuals with manic-depressive illness. When combined with a phenothiazine rapid resolution of a manic break is effected. In addition, lithium has been shown to be valuable in the long-term prophylaxis of manic and possibly depressive relapses in manic-depressive illness. It has also recently been suggested that a combination of Parnate and lithium may be helpful in the treatment of refractory depressions.[5]

Maintenance Treatment

Clinical trials in the last decade have provided good evidence that tricyclic antidepressants are effective in the treatment of acute depression.[6] The situation for maintenance treatment is currently under investigation and several studies are underway to evaluate the efficacy of maintenance antidepressant medication administered alone or together with psychotherapy. Results to date indicate that when antidepressants are continued for six months they are effective in preventing relapse.[7] [8]

The etiology of depression remains obscure and a number of intensive biological and genetic investigations are in progress in an effort to establish the involvement of genetic and biochemical factors in this disorder.

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Post-Traumatic Acute Renal Failure in Vietnam: A Milestone in Progress

Andrew Whelton, M.D.

During the past three decades the U.S. has been involved in three major wars; World War II; the Korean War; and the Vietnam Conflict. With each of these wars dramatic improvements have taken place in the overall techniques in medical and surgical care of combat injured. In addition, the methods by which these patients are evacuated from the combat zone to medical facilities wherein definitive medical and surgical resuscitation can take place, have remarkably improved. It was also during the last three decades that hemodialysis as a clinical modality for the therapy of acute renal failure (ARF) was born and raised.

In reviewing the experiences obtained in the management of patients with acute renal failure in each of these wars, it is interesting to note the significant progress that has been made and to identify the con-

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DR. ANDREW WHELTON, Assistant Professor of Medicine, The Department of Medicine, Johns Hopkins University School of Medicine and The Johns Hopkins Hospital, Baltimore, Maryland. Formerly Commanding Officer of the 629th Medical Renal Detachment, U.S. Army Medical Corps.

tribution each conflict has made to our understanding of ARF.[1-13]

In World War II recognition of the syndrome of acute renal failure following battle trauma or crush injuries began to emerge. However, only one study was undertaken in World War II which identified the extremely poor prognosis of post-traumatic ARF. In that study 186 seriously injured patients were evaluated[1] and it was found that 43% developed azotemia with a 91% mortality rate ensuing in the latter patients. Since the first use of hemodialysis as a clinical modality for the therapy of ARF occured in the late 1940's it was not available for use in World War II. However, during the Korean War the problem of post-traumatic ARF was again noted to be a major unsolved clinical problem. Accordingly, a medical research team from the Walter Reed U.S. Army Medical Center went to the combat zone with one of the earliest models of an artificial kidney and was brilliantly successful in both elucidating the pathophysiology of post-traumatic ARF and in reducing its greater than 90% mortality rate to an overall figure of 53%, which included all dialyzed and non-dialyzed patients admitted to the Korean Renal Insufficiency Center.[2-4] Mortality rate amongst the patients dialyzed in the latter center was 68%.

As a sequel to the Korean War experience a specific medical renal detachment, with its own Table of Organization and Equipment, was established in 1963 to treat ARF in any future conflct area.[5-7] By mid 1965 a large build-up of U.S. troops had taken place in South Vietnam; once again the syndrome of post-traumatic ARF was encountered. As a result, the 629th Medical Renal Detachment, appropriately designated as a "KP" team was activated and deployed to Saigon in 1966.[7] This renal center then remained operative as the only in-country dialysis unit until February, 1972.

By the time the Saigon Renal Center was established the equipment for dialysis purposes had vastly improved and forearm AV teflon-silastic shunts had become available for repetitive hemodialysis. It had already been established that the mortality rate secondary to post-traumatic ARF could be reduced by hemodialysis, but now the questions that remained to be answered were: a) could the incidence of post-traumatic ARF in Vietnam be reduced below the figure in Korea and b) could the mortality rate of established post-traumatic ARF be reduced below the figure identified in Korea. Both of these questions have now been answered and we may examine them sequentially.[10-13]

Assessing the overall incidence of post-traumatic ARF in a combat zone is of necessity somewhat artificial since several of the etiologic factors pertinent to the post-traumatic ARF syndrome are variable such as, the severity and type of injury (Napalm, artillery, booby-trap or gunshot), the rapidity of evacuation and resuscitation and the percentage of surviving seriously injured patients. The most meaningful figure for occurrence of post-traumatic ARF is that based on the frequence with which the syndrome is manifest in surviving seriously injured combat casualties. In this context seriously injured patients are those who survive during evacuation to a hospital and who require immediate surgical and fluid resuscitation. Table I demonstrates that mortality among the seriously injured in Vietnam and Korea tended to approximate each other (2.5%); however, for comparative purposes the wounded to killed ratio is a more informative statistic since in Vietnam this was 6:1 while in Korea it was 3:1.

TABLE I

POST-TRAUMATIC ACUTE RENAL FAILURE INCIDENCE DURING THE WARS IN KOREA AND VIETNAM

	KOREA	*VIETNAM*
Seriously injured mortality	2.5%	2.5%
Seriously injured: Killed	3:1	6:1
Seriously injured: Development of post-traumatic ARF	200:1	600:1

Thus, many more seriously injured combat casualties survived in Vietnam; nonetheless, only 1 in every 600 of the seriously injured combat troops in Vietnam developed post-traumatic ARF whereas in Korea 1 in 200 developed the syndrome. This means that despite the increased population of surviving seriously injured troops in Vietnam the incidence of post-traumatic ARF was strikingly reduced from that recorded in Korea. Such a decrease in the incidence of post-traumatic ARF may be attributed to improved excellence and speed in evacuating casualties from the battlefield; improved techniques in medical, surgical and fluid resuscitative therapy and a constant awareness by the combat zone physicians of the preventive principles of renal failure.

The injured troops who developed post-traumatic ARF in Vietnam were treated with early and frequent hemodialysis.[10-12] Most of the patients were hypercatabolic, systemically infected and extensively injured. Renal failure was generally only one manifestation of multi-system failure in critically ill and diffusely injured patients. Gastro-intestinal injury, with attendant intraabdominal sepsis, was a particularly lethal complication of post-traumatic ARF in Vietnam. Table II summarizes the experience with post-traumatic ARF as seen in Vietnam casualties. In each of the dialysis facilities listed, the mortality rate was remarkably similar with a mean figure of

TABLE 11

MORTALITY RATE IN POST-TRAUMATIC ARF IN THE VIETNAM WAR. COMPARISON OF DIALYSIS FACILITIES.

DIALYSIS FACILITY	*DATE*	*NO. OF PATIENTS*	*MORTALITY*	*AUTHORS*
U.S. Army 629th Renal Detachment Saigon, R.V.N.	1966-67	18	67%	Whelton and Donadio[10]
U.S. Army 629th Renal Detachment Saigon, R.V.N.	1967-69	62	69%	Knepshield and Stone[11]
Clark USAF Hospital Republic of the Philippines	1966-69	67	63%	Lordon and Burton[12]
Tachikawa USAF Hospital Tachikawa, Japan	1964-67	29	66%	Sloan[13]
	TOTAL	176	66%	

66% resembling that of the Korean war days. There is some suggestion that the patients with post-traumatic ARF seen in Vietnam were more seriously injured than those seen in Korea,[13] nonetheless, the mortality data amply demonstrate that in the present day and age renal failure secondary to trauma has a very grave prognosis and despite early and vigorous dialysis patients will often die from non-renal causes.

In summary, the three wars of the last three decades have demonstrated three significant milestones in the medical history of combat acute renal failure. Firstly, in World War II came the recognition of the syndrome of acute renal failure developing as a consequence of battle trauma and crush injuries; secondly the demonstration in the Korean War that hemodialysis could significantly reduce the mortality associated with post-traumatic ARF; and thirdly the demonstration in Vietnam that post-traumatic ARF is largely a preventible complication of severe combat trauma and that in our present state of knowledge all emphasis should be directed toward the preventive principles of ARF in the management of combat casualties.

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Connecticut Gonorrhea Screening Program

Guy M. Comfort, B.A., M. DeWayne Andrews, M.D. and James McElroy, M.D., M.P.H.

Reported cases of gonorrhea in the United States have been increasing by more than 15% per year. In Connecticut, reported cases of gonorrhea have increased 89% since 1967, with 7,907 cases reported in 1972. A recent national survey of 135,000 physicians indicated that 89% of patients with gonorrhea treated by private physicians were not reported to health officials, thus signaling the overwhelming magnitude of the venereal disease problem in our society.[1]

In males gonorrhea is usually a symptomatic disease motivating the patient to seek medical attention. In females gonorrhea is frequently an *asymptomatic* disease (70-80% of cases). If untreated, asymptomatic females remain an infectious reservoir within the population. Unless screening procedures are utilized to detect asymptomatic disease in females, many cases of gonorrhea will escape diagnosis and treatment. In July 1972, the Connecticut State Department of Health initiated a statewide gonorrhea screening program whose purpose is to identify and bring to treatment females with asymptomatic gonococcal infections. With development of a convenient, reliable transport medium (TRANSGROW, see below), the State Department of Health strongly encourages physicians and clinics performing routine pelvic examinations to include a screening culture for gonorrhea. This recommendation applies particularly to the age group 15-29 which is at highest risk of acquiring gonorrhea.[2] The results of routine cervical gonorrhea screening cultures in Connecticut from July 1972 through March 1973 are shown in Table 1.

In 1964, Thayer and Martin introduced a selective culture medium for the isolation of *Neisseria gonorrhoeae*.[3] Antibiotics incorporated in Thayer-Martin (T-M) medium significantly reduce overgrowth of contaminating organisms and eliminate growth of saprophytic Neisseria and *Mima polymorpha* variants which might be mistaken for gonococci. Until recently, routine use of cervical culture in the physician's office practice has been limited by two factors: the gonococcus growth requirement of carbon dioxide and lack of an adequate transport medium. Specimens taken had to be inoculated on T-M plates and placed in an atmosphere of CO_2, usually requiring the candle-jar technique. Early attempts to circumvent this cumbersome procedure by use of transport media proved unsuccessful. By modifying the original T-M medium, Martin and Lester developed an effective, reliable transport medium known as TRANSGROW.[4]

Table 1

GONORRHEA FEMALE SCREENING CULTURE TEST RESULTS

State of Connecticut, July 1972 through March 1973

Facility Performing Test	*Number Tested*	*Number Positive*	*Percent Positive*
Private Physicians	22,373	824	3.7
Public/Private Hospital	10,141	486	4.8
Private Family Planning Groups	7,424	106	1.4
Health Dept. Non VD Clinics	2,488	49	2.0
Community Neighborhood Health Centers	1,388	71	5.1
Other Non VD Clinics	2,816	89	3.2
Total Non VD	46,630	1,625	3.5
Venereal Disease Clinics	10,388	1,363	13.1
GRAND TOTAL	57,018	2,988	5.2

TRANSGROW is packaged in a small vial containing an atmospheric mixture of 10% CO_2 and 90% air. This transport medium appears to be as sensitive as T-M medium and with proper use maintains gonococci in a viable state for longer than 48 hours. Three major points require emphasis regarding use of TRANSGROW medium: (1) TRANSGROW should be stored at 2 to 8 °C. and has a shelf life of 3 to 4 months, (2) the medium should be brought to *room* temperature before inoculation, (3) the bottle should be kept upright when inoculating the medium since CO_2 is heavier than air and will only remain in the bottle if this condition is satisfied.

To obtain maximum recovery rates from inoculated TRANSGROW specimens, a daily pick-up and delivery service has been established at locations throughout the state. Specimens left at these locations arrive at the Laboratory Division of the State Department of Health within 2 hours. Financial grants have been awarded to the towns of Bridgeport, Greenwich, Hartford, New Haven, Stamford, and Waterbury to conduct this program within their areas; physicians and clinics in these areas can obtain media and laboratory services through their

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GUY M. COMFORT, Public Health Advisor, Venereal Disease Branch, Epidemiology Section, Preventable Diseases Division; DR. M. DEWAYNE ANDREWS, Epidemiology Section, Preventable Diseases Division; DR. JAMES McELROY, Chief, Epidemiology Section, Preventable Diseases Division, all at the Connecticut State Department of Health, Hartford, Conn.

local department of health. For physicians and clinics not in the areas specified above, a list of pick-up locations is given in Table 2.

Table 2
GONORRHEA CULTURES PICK-UP LOCATIONS

Town	*Location*	*Time*
Bristol	Bristol Hospital	10:00 a.m.
Danbury	Danbury Hospital	10:30 a.m.
Derby	Griffin Hospital	M-W-F only
Enfield	Thompsonville Drug Co.	11:00 a.m.
Middletown	Middlesex Memorial Hospital	12:30 p.m.
Manchester	Manchester Memorial Hospital	11:00 a.m.
Meriden	Meriden-Wallingford Hospital	12:00 Noon
New Britain	New Britain General Hospital	10:00 a.m.
New London	New London Health Dept.	12:00 Noon
Norwich	Backus Hospital	9:00 a.m.
Putnam	Day-Kimball Hospital	9:00 a.m.
Sharon	Sharon Hospital	11:00 a.m.
Willimantic	Windham Hospital	10:00 a.m.

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PLEASE MARK YOUR CALENDAR

182nd CONNECTICUT STATE MEDICAL SOCIETY ANNUAL MEETING

To Be Held At The
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APRIL 30, MAY 1, 2, 1974

Plan Now and Save the Dates

CALL FOR SCIENTIFIC EXHIBITS

182nd ANNUAL MEETING
CONNECTICUT STATE
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April 30, May 1, 2, 1974

The Scientific Exhibits Committee announces that exhibit applications are now being received for the annual meeting. Exhibits large or small, not more than 7 feet deep and eight feet wide, are welcomed from members, sections of the Society, and hospital staffs.

Applications for exhibit space may be obtained from the Connecticut State Medical Society office, 160 St. Ronan Street, New Haven. DEADLINE FOR EXHIBIT ENTRIES February 1, 1974.

The President's Page

Confidentiality of patient information appears to have become an issue of major concern to physicians because the Professional Standards Review Organization (PSRO) law carries with it the requirement for detailed analysis of the institutional records of all Medicare and Medicaid beneficiaries. Much of such formerly privileged information is to be fed into computers in order to develop standards, norms, etc. How this information can be kept confidential and its availability restricted to qualified personnel raises many problems.

At a recent meeting in Boston of representatives from New England to the AMA, it was voted to support a resolution which, in essence, states that patients should be advised that when a third party payor is involved in the physician-patient relationship, confidentiality is jeopardized or may even be done away with completely. This, of course, stems from the fact that in becoming a subscriber to an insurance program, the individual (or his employer), wittingly or unwittingly, signs away his rights to confidentiality.

It does seem strange that we physicians should become so disturbed about privileged communications so belatedly. Under the guise and obligation of "helping the patient obtain his insured benefits" we have been giving away this kind of information for years via insurance claim forms. And much of this information has been stored in central computer banks unbeknownst to the patient until such time as he re-applies for insurance coverage and has his application denied because a computer reports that twenty-five years ago his doctor recorded a single episode of transient hypertension.

Our renewed concern in this matter is honorable and well-founded, but our attempts to "lock the barn door" at this late date are almost certain to meet stiff opposition from third party payors, both private and public.

Sidney L. Cramer, M.D.,
President

Connecticut Medicine

Editorial

Professional Services Regulation Organization

PSRO was by far the most important issue of the December 1-4 AMA meeting in Anaheim. The consensus was that the law is a bad one. The question was what should be done about it. The House of Delegates, reflecting a changing sentiment of its constituents throughout the country, voted to give high priority to its repeal. All physicians must give PSRO a second look, especially we in Connecticut who had decided, given the law as a fait accompli, to cooperate in its implementation.

The Board of Trustees had prepared an excellent report, listing the options: (1) improve the law through regulations and amendments (2) amendments to eliminate nondesirable provisions (3) repeal (4) nonparticipation. It concluded: "The Board of Trustees are aware of the possibility that the House of Delegates could elect to support the idea of repeal of the law. However, the practical considerations indicate that this may be impossible to achieve, so that there should be a policy position which would prevail so long as the law remains in force.

"The considered opinion of the Board of Trustees . . . is to recommend to the House of Delegates that the AMA continue to exert its leadership by supporting constructive amendments to the PSRO, coupled with continuation of the effort to develop appropriate rules and regulations."

Ten resolutions on PSRO had been introduced — 7 for outright appeal, 2 for nonparticipation, and 1 for restraint and cooperation. Like all resolutions and reports they were sent to a reference committee for a hearing. Over 50 of the 500 attending spoke at a 4 hour hearing. Everyone who wished spoke, with no time limit. Among the many objections were: bureaucratic government will intrude into medical practice and the physician-patient relationship. Its emphasis on mechanical computerized norms and standards will adversely affect the quality of practice; though it may elevate the lowest standards of practice, it can dampen the new and creative. Contrary to its purpose of decreasing costs of health care, it may do the opposite. By definition bureaucracy is impersonal, objective, rigid, with increased paper work; it must increase. Confidentiality, in its historic and traditional sense of patient to physician, may disappear.

The reference committee, working well into the night to prepare its report, recommended adoption of the conclusions of the Board of Trustees. But a swelling tide of opposition stimulated more debate by the delegates, resulting in an amendment making repeal a high priority, tempered by acceptance of the recommendation of the trustees that, until the issue of repeal be resolved, the AMA cooperate in implementing the present law, always trying to influence the all-important regulations put out by the HEW.

What should we in Connecticut do? Your AMA delegation returned knowing that there is yet time to study PSRO and make an informed opinion. We learned that opposition throughout the country is much greater than in New England. So first, know the law (March 1973 issue of the *Journal*). Then start at the grass roots, in each hospital and county society. Each hospital staff and county can refer the law to a committee for translation of the legalese of PSRO with recommendations. Each county should after deliberation come to a consensus. The State Society will keep the membership informed; members of the hard-working and excellent PSRO Committee chaired by Dr. James D. Kenney of New Haven are available as informed speakers. Write to the AMA for up-to-date information. Read the AMNews. Sooner or later, I would infer that our Council will bring together in some sort of meeting those responsible throughout the state for formulation of recommendations and a decision.

This law is more important than Medicare, probably the most important affecting physicians up to the present. Let us know what we are talking and voting about!

Fred Fabro, M.D.

Reflections From The Dean's Office

Robert U. Massey, M.D.

The energy crisis appears to some of us to have come almost too quickly to be believable. But recalling the nature of exponential growth, we should reflect that what happened is exactly what we should have expected. The owner of a pond whose water lilies have doubled in number each day during the early summer makes plans to clean them out when half his pond is covered. He forgets that when that day comes he will have left only one day to finish the job.

In a world in which two thirds of its people are near to starvation or are dying from the effects of malnutrition, and in which the population will double in 15 years, the food crisis will come just as quickly, and to many, as unexpectedly.

Or the materials crisis. Wool, titanium, sodium, wood, paper — manufacturers are less concerned now about sales than with how they will assemble their raw materials to fill existing orders.

As physicians and clinicians we understand how small events can be critical during periods of biologic instability. An upper respiratory infection, a fractured hip, a financial loss — "that's all it took."

The limited supply of our available resources, including time; the constraints imposed by nature on a small planet; the finite ability of man to deal with growth and change and himself are daily becoming more evident and are compelling us to rewrite the rules of our game — a game which up to now has been a little like tic-tac-toe on an infinite plane.

Health services are and have always been in short supply. Except in a few pockets of relative prosperity, the undeveloped world with its billions of people has no medical service that makes any difference. Much of our own nation is poorly served because of poverty, ignorance, geographic isolation, incompetent professionals, or inadequate services.

Last year 47% of the newly licensed physicians in this country were foreign medical graduates, the majority foreign nationals, educated at their country's expense, who now by training and inclination are ill-prepared to do anything worthwhile to improve health services in India, South America, or the Phillipines. The remainder were American students, mostly qualified, who could not be admitted to our own medical schools because they are filled to overflowing.

We are told by the planners in Washington that our schools are about to produce a doctor surplus. That may be true for some places, like suburbia; or for some specialties, like surgery. It is not true for the world, nor for the primary care specialties and public health.

We have a shortage of skilled, competent, humane professional men and women to tend to the world's health needs, and that shortage is rapidly becoming critical. It may not come to our attention as dramatically as the energy crisis of 1973. There will be less fanfare, and perhaps Moscow and Peking will have prepared for it well ahead of us. As with energy, we shall be required to learn to use what we have more efficiently, less wastefully, less unnecessarily. As with energy, we should be considering world-wide needs.

Individually we could know enough now to prevent most of our illnesses and disabilities. We could be taught to care for ourselves and each other in most minor self-limited sicknesses and injuries.

Certainly for a literate population, education in these matters ought to be easy. To take the strain off the health care system, we need to learn to reduce self-inflicted disease and injury, to convince our patients that self-limited disease and minor injuries can be self-treated, and to diminish the number of the worried well. Rational use of our existing resources, whether energy, food, materials, or health manpower, and aggressive research into better ways to do the job, or prevent the need, seem to be what is required in coping with the exponential curves of the final quarter of the Twentieth Century.

ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.

Important Advances In Clinical Medicine

Epitomes of Progress — Internal Medicine

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Internal Medicine. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in Internal Medicine which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Internal Medicine of the California Medical Association and the summaries were prepared under its direction.

Ultrasound as a Non-Invasive Technique for Measuring Cardiac Performance and Diagnosing Cardiac Lesions

Repetitive short pulse bursts of ultra high-frequency sound can be directed into the chest, along a relatively narrow path, with partial reflectance of the sound at each interface of materials having different acoustic impedance or density. This principle has allowed the development of a safe, non-invasive means to record and analyze the motion of intracardiac structures. Echography of mitral valve motion shows a characteristic early diastolic and pre-systolic opening pattern which is grossly altered in mitral stenosis. The atrioventricular pressure gradient maintains the valve in the open position throughout diastole. The normal M-shaped pattern is thus converted to a square wave. The slope of the diastolic portion of this pattern and the leaflet excursion gauge the severity of stenosis and the pliability of the leaflets, respectively.

Echography has provided a valuable screening test for mitral stenosis and differentiates true stenosis from the Austin-Flint murmur and intracardiac tumors which may masquerade as valvular disease. Patients with muscular subaortic stenosis have an abnormal systolic motion of the anterior mitral leaflet toward the left ventricular outflow tract. This abnormal systolic motion is well seen echographically and provides a non-invasive diagnostic test for this condition. Posterior systolic motion of the mitral valve is recorded in the prolapsing posterior leaflet syndrome of non-rheumatic mitral regurgitation.

It is possible to direct the ultrasonic beam along a path including the chest wall, right ventricle, interventricular septum, and left ventricle, intersecting the posterior left ventricular wall just below the free edge of the mitral valve, and just above the tips of the papillary muscle. This beam orientation currently is used most to define the presence or absence of pericardial fluid, the thickness of the posterior left ventricular myocardium and the size of the ventricular chambers. The bedside diagnosis of pericardial effusion has been very reliable since the development of a standardized technique for the examination. This latter method has great utility in acutely ill patients or in emergency situations. Increased relative size of the right ventricle and abnormal interventricular septum motion are observed in conditions with diastolic volume overload of the right ventricle such as atrial septal defect, anomalous pulmonary venous return and tricuspid regurgitation. End-diastolic and end-systolic left ventricular diameters measured echographically may be used to calculate total left ventricular stroke volume and ejection fraction. If there is valvular regurgitation, the difference between total ventricular stroke volume and effective or forward stroke volume measured by the Fick method gives a quantitative estimate of the degree of regurgitation. Also, echographically determined velocity of left ventricular epicardial motion has been used as an index of ventricular contraction.

RICHARD L. POPP, M.D.

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Combination Drug Therapy in Metastatic Carcinoma of the Breast

The use of combinations of cytotoxic agents in the treatment of advanced cancer has proved to be superior to single agent therapy in clinical response and survival in leukemia and lymphoma. Recently, encouraging results have been obtained in other metastatic solid tumors.

Metastatic carcinoma of the breast which is unresponsive to or has relapsed from endocrine therapy has recently been shown to be quite responsive to a five-drug combination including 5-fluorouracil, methotrexate, cyclophosphamide, vincristine and prednisone, with good to excellent responses in more than 70 percent of patients. Similar high complete response rates have been obtained with modifications of this therapy in several institutions. We have obtained good to excellent responses in 68 percent of patients treated with 5-fluorouracil, methotrexate and cyclophosphamide. Toxicity from this drug combination has been low.

STEVEN A. ARMENTROUT, M.D.

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Hypothalamic Hypthyroidism

The simultaneous occurrence of a low thyroid hormone level and a normal or low serum level of thyroid stimulating hormone (TSH) in a patient with hypothyroidism establishes the diagnosis of secondary hypothyroidism. The administration of thyrotropin releasing hormone (TRH), which is normally synthesized and released by the hypothalamus, enables the physician to distinguish between pituitary and hypothalamic causes of hypothyroidism. TRH will normally cause the release of TSH from the pituitary gland. This will occur even in the face of an elevated TSH level in patients with primary hypothyroidism. If the thyrotroph cells of the pituitary gland are destroyed, no rise in TSH occurs. When the hypothalamus does not synthesize or release TRH, the administration of exogenous TRH will result in prompt rise of serum TSH. To date, the cases reported of pituitary hypothyroidism have been associated with pituitary tumors, hypophysectomy or postpartum necrosis of the pituitary gland. Hypothalamic hypothyroidism, on the other hand, may either be idiopathic or result from demonstrable hypothalamic disease, and it accounts for most cases previously attributed to an idiopathic pituitary TSH deficiency. The TRH stimulation test can therefore aid in more accurate localization of certain destructive processes of the central nervous system.

FRED J. PALMER, M.D.

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Indications for Lavage in the Treatment of Bronchopulmonary Disease

Segmental lung lavage has been attempted for many years in the treatment of a variety of pulmonary diseases. In recent years, a technique using "volume-controlled lung lavage" has been reported to be of value in certain circumstances.

With the use of a Carlens tube, one can isolate the two lungs, allowing for ventilation of one lung while lavage is being carried on in the other. Normal saline solution is used as the basic lung irrigant. Monitoring of serial arterial blood gas samples during the lung lavage is important to insure that an adequate arterial PO^2 is being maintained.

"Volume-controlled lung lavage" has been used in the treatment of pulmonary alveolar proteinosis, chronic bronchitis, cystic fibrosis, bronchial asthma, pneumonia, desquamative interstitial pneumonitis, bronchiectasis, Goodpasture's syndrome, and accidental radioactive particle inhalation.

In alveolar proteinosis, lung lavage consistently results in improvement, and in fact, may be lifesaving. Multiple lavages may be required in the treatment of this disorder.

In "status asthmaticus," lack of appropriate response to therapy may be due to diffuse plugging of airways with thick tenacious mucus. Removal of these plugs by lung lavage may greatly improve alveolar ventilation.

In cystic fibrosis, it would be expected that lung lavage would be of great benefit. However, one cannot recommend this as general practice, since experience with lavage in this disease is quite limited.

The clinical experience with lung lavage in the treatment of bronchiectasis, Goodpasture's syndrome, desquamative interstitial pneumonitis, chronic bronchitis, pneumonia, and inhalation of radioactive particles is not large enough to allow one to make recommendations as to the efficacy of this procedure in these disorders.

JOHN E. HODGKIN, M.D.

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Alpha$_1$-Antitrypsin Deficiency

An association between pulmonary emphysema and a deficiency of serum antitrypsin activity was first reported by Swedish investigators in 1963. This discovery has improved our understanding of the pathogenesis of pulmonary emphysema, and has resulted in the ability to detect individuals inherently predisposed to chronic obstructive lung disease. Alpha$_1$-antitrypsin is the major component of the alpha$_1$-globulin fraction of human serum, and it is inhibitory to a number of proteolytic enzymes including trypsin, elastase, chymotrypsin, and the leukocytic proteases. Being an acute phase reactant protein, alpha$_1$-antitrypsin has a fluctuating level that responds to infection, inflammation, estrogens and acute or chronic destructive tissue processes.

The proteolytic enzymes of leukocytes have been accused of causing the destructive process leading to pulmonary emphysema. In the advent of an intrapulmonary inflammatory reaction, leukocytes and other macrophages invade the area to engulf and digest cellular debris, but the lung parenchyma is protected from the digestive action of macrophagic proteases by the alpha$_1$-protease inhibitor. Persons with inherited deficiency of alpha$_1$-antitrypsin are unable to increase their level of antiprotease activity high enough to prevent the digestion of pulmonary alveoli, and emphysema results.

The inheritance pattern for antitrypsin deficiency involves two co-dominant genes. Abnormality of one of the two genes (heterozygosity) results in intermediate levels of antitrypsin activity, whereas the homozygous state results in a severe deficiency of this activity (approximately 10 percent of normal activity). It had originally been thought that only the severe homozygous deficiency state could result in pulmonary emphysema, but more recent findings have raised the very startling possibility that the heterozygous state may also predispose to chronic lung disease. If true, the number of affected persons would approximate 5 percent of the population. If only the homozygous condition predisposed to lung disease, the number of susceptible persons would be much less. Studies to date suggest that a heterozygous person is protected to a degree by his intermediate level of antitrypsin activity, but that continued or recurrent inflammation, as would occur in a heavy cigarette smoker, renders this limited protection inadequate.

The type of lung disease that occurs in these persons appears to be primarily a pure type of emphysema with predilection for the lung bases. This is in contradistinction to emphysema in persons with normal antitrypsin activity, where the upper lung fields seem to be primarily involved. In those with homozygous deficiency of antitrypsin activity, lung disease tends to develop at a younger age than in those with heterozygous antitrypsin deficiency or those with normal antitrypsin activity. It has been reported that a person in whom emphysema develops before age 50 has approximately a 50 percent chance of having either homozygous or heterozygous antitrypsin deficiency.

Current research is dealing with improved methods for detecting persons with intermediate levels of antitrypsin deficiency, and for confirming whether or not those with an intermediate deficiency are proclived to lung disease. Alpha$_1$-antitrypsin activity or concentration is measured either by immunodiffusion, using a specific antibody, or by an enzymatic assay of the trypsin inhibitory capacity of serum. Multiple alleles of the antitrypsin molecule have been detected by acid starch electrophoresis, and their relationship to lung disease is being studied.

Research is also being directed toward developing a therapeutic approach to this condition. It is known that the alpha$_1$-antitrypsin molecule is produced primarily by the liver. A liver transplant resulted in complete reversal of the antitrypsin abnormality in a child with the homozygous deficiency who was dying of infantile cirrhosis. This is an approach to therapy that may become more applicable in future years. Other modes of therapy being investigated involve methods for stimulating the body to produce more of the antitrypsin, or for replacing the deficient protein by parenteral means. An animal model is available for experimentation with the enzyme papain. Mammalian blood and tissue is incapable of inhibiting papain activity, and the instillation or inhalation of papain into the lungs can result in experimental emphysema. This animal model results in lung disease that resembles the pathologic changes found with antitrypsin deficiency, and it lends itself to experimentation with various drugs and hormones in attempts to prevent the destruction of lung tissue.

At the moment, no satisfactory therapeutic approach is available for correcting a deficiency of alpha$_1$-antitrypsin activity, and the main interest and concern of physicians should pertain to the detection of deficient persons and warning them against smoking or working in industry where they might be exposed to pulmonary irritants such as dusts or fumes. Pre-employment testing in certain industries should eventually become very rewarding.

Jack Lieberman, M.D.

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The Significance of Australia Antigen

Australia Antigen—Au(1) or Hepatitis B antigen (HBAG)—which was discovered by Glumberg in 1963, is a 200 Angstrom protein polysaccharide particle with a configuration resembling that of a virus. It has been found predominantly in the sera of patients with long incubation period post-transfusion hepatitis, but has also been detected in the sera of some patients with short incubation period hepatitis. The presence of this antigen, or its antibody or antigen-antibody complexes, has been found to have both diagnostic and prognostic significance.

A variety of assay systems are available for the detection of this particle, among them the radioimmunoassay, hemagglutination-inhibition and complement fixation tests which are highly sensitive. Immunodiffusion and immuno-osmo-electrophoresis are thought to be less sensitive, but are rapid, simple, and inexpensive. A rapid automated sensitive complement fixation assay has recently been described.

HBAG has many characteristics of a virus. It may be transmitted in blood products, orally, or transplacentally. Accordingly, it has been implicated in cases of post-transfusion, infectious, and neonatal hepatitis. HBAG may be found in 60 to 98 percent of patients with long incubation period, post-transfusion hepatitis; in 10 to 25 percent of patients with chronic active hepatitis; and it has recently been found among patients with primary biliary cirrhosis and in some patients with hepatoma.

The exclusion of HBAG-positive units of blood has reduced the frequency of post-transfusion hepatitis by at least 25 percent in some institutions. The presence of the antigen may aid in differentiating post-transfusion hepatitis from other forms of liver disease, such as drug-induced hepatitis. The persistence of HBAG for weeks or months may indicate the development of chronic liver disease. Anticomplementary complement fixation assays may indicate the presence of circulating antigen-antibody complexes which can be found in subacute or chronic hepatitis. Serial HBAG determinations among patients followed with serial liver biopsies have now revealed that some patients with HBAG-positive acute hepatitis may progress to HBAG chronic active hepatitis. Such patients may develop postnecrotic cirrhosis or occasionally may progress to primary biliary cirrhosis. Chronically ill patients such as those undergoing chronic hemodialysis or patients with immune deficiency states are particularly prone to HBAG-positive chronic liver disease.

Preliminary data suggest that inactivated HBAG may lead to the development of a hepatitis vaccine and that antibody to HBAG may confer some protection against the development of long incubation period hepatitis. These promising studies require confirmation.

The discovery of HBAG has led to new insight into the pathogenesis of acute and chronic liver disease. The HBAG assay offers important diagnostic and prognostic information to the clinician. Furthermore, exclusion of HBAG positive blood donors may significantly reduce the frequency of post-transfusion hepatitis.

Gary L. Gitnick, M.D.

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Some Effects of Ischemia on Heart Muscle

Myocardial ischemia produces a rapid loss of contractile strength. Fogelman et al demonstrated that diastolic motion of the posterior ventricular wall is impaired during angina pectoris. This abnormality was reversed by nitroglycerin and is consistent with evidence for impaired relaxation of ischemic muscle observed in the animal laboratory. Impaired relaxation can contribute to decreased distensibility of the ischemic left ventricle during myocardial infarction and thereby explain the high left ventricular filling pressures seen in some patients with acute infarctions despite normal sized cardiac silhouettes. Digitalis can improve myocardial function early after acute myocardial infarction but without significant increase in cardiac output. The failure of digitalis to alter ventricular distensibility may account for failure of the drug to significantly improve cardiac function in some infarct patients, particularly those with small heart size.

Kenneth I. Shine, M.D.

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The Use of Sulfonylureas in the Treatment of Adult Onset Diabetes

Results of the University Group Diabetes Program (UGDP) study revealed an increased cardiovascular mortality and no clear-cut reduction in vascular complications in diabetics treated with tolbutamide (Orinase®). This led the Federal Drug Administration to advise against the use of sulfonylureas in general, except in very special circumstances. However, other publications do not confirm these observations and a large body of practicing diabetologists, I among them, feel that when sulfonylureas can be proved to be effective in lowering blood sugar, their use is actually beneficial and indicated. I institute a strict diet, attempt weight reduction at all cost, and often achieve normalization of the fasting and two-hour postprandial blood sugar. Only if this fails and the patient is not ketoacidosis-prone are sulfonylureas given for up to two weeks.

After this period, a two-hour postprandial blood sugar, after the patient's usual breakfast, should fall within 10 mg per 100 ml of the fasting level. Failing to achieve postprandial blood sugar control, I start insulin, since 40 percent of patients on sulfonylureas may show secondary failure within a five-year period of treatment.

Peter Forsham, M.D.

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Protamine Sulfate Test — Its Role in Differentiating Disseminated Intravascular Clotting from Primary Fibrinolysis

Disseminated intravascular clotting (DIC) and primary fibrinolysis are disorders in coagulation associated with a number of common pathologic conditions. The therapy for each of these conditions is specific. Therefore, erring by treating disseminated intravascular clotting with epsilon amino caproic acid or primary fibrinolysis with heparin may lead to intensification of the pathologic process with subsequent bleeding or thrombosis. Laboratory studies such as the partial thromboplastin time, Quick prothrombin time, thrombin time, and fibrinogen titer only detect reductions in the quantity of plasma clotting factors and as a result are not specific for either coagulopathy.

The plasma protamine sulfate test, using 0.1 percent protamine sulfate in plasma at 37° C, specifically reveals the presence of soluble fibrin. Soluble fibrin can only result from the action of thrombin on fibrinogen and in disseminated intravascular clotting thrombin, not plasmin, is the principal enzyme acting on fibrinogen.

Peter T. Otis, M.D.

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The Significance of Triiodothyronine

Triiodothyronine (T-3) once considered of only secondary importance compared to thyroxine (T-4), now appears responsible for the majority of the effects of thyroid hormones in normal subjects. A significant proportion, approximately one-third, of the T-4 metabolized daily is converted to T-3, and T-3 is three to four times as potent as T-4. These considerations have, in fact, raised a question whether T-4 has any intrinsic hormonal activity by itself or whether it serves merely as a "prohormone" for the hormone, T-3. The issue has not been settled fully as yet, although analysis of certain clinical situations does favor some direct hormonal role of T-4.

T-3 circulates in human serum in a concentration approximately one-seventieth that of T-4. Recent studies indicate that the T-4 to T-3 ratio in thyroglobulin is normally about 19 to 1 rather than 4 to 1 as surmised previously. Assuming that T-4 and T-3 are secreted in the same proportion that they exist in thyroglobulin, it can be calculated that only a minor fraction (approximately 20 to 30 percent) of circulating T-3 originates from thyroidal secretion. The remaining serum T-3 would appear to derive from extrathyroidal sources. Serum T-3 is normal in hypothyroid patients maintained on synthetic T-4 in a dose sufficient to increase serum T-4 concentration to normal. This finding strengthens the consideration that circulating T-3 derives mainly from extrathyroidal conversion of T-4.

The ratio of concentrations of serum T-3 to T-4 is considerably above normal in patients with Graves' disease. Therefore, the measurement of serum T-3, now available commercially, is even more helpful in the diagnosis of hyperthyroidism than is T-4. The entity of "T-3-thyrotoxicosis," where hypermetabolism is due to elevated serum T-3 in the face of normal serum T-4, is now established. It may be suspected in clinically hyperthyroid patients with diffuse goiter or in those with a solitary or multiple nodules in the thyroid gland. On the other hand, measurement of serum T-3 is a less definitive test for diagnosis of hypothyroidism, where measurements of serum T-4 and thyroid stimulating hormone (TSH) are more helpful.

Inder Chopra, M.D.

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Human Tumor Viruses

In recent years viruses have been found in association with several human tumors. In no case, however, has a virus yet been shown to be the cause of human malignant disease. The prospect that human tumor viruses do exist and that methods may be available to identify and study them has been suggested in extensive experimental work with tumor viruses in lower animals. These studies have demonstrated remarkable similarities in the physical characteristics and biological behavior of tumor viruses from species to species. Among the known tumor viruses are the deoxyribonucleic acid (DNA) herpes viruses, such as the lymphoma-producing Marek's disease virus of chickens, and the ribonucleic acid (RNA) viruses with lipid-containing envelopes which cause mammary adenocarcinoma in mice and leukemias and lymphomas in chickens, mice, cats and probably other species.

One example of a virus found in association with human cancer is Epstein-Barr (EB) virus, a herpes virus. Patients with Burkitt's lymphoma and carcinoma of the postnasal space have very high titers of EB virus antibody in their blood, and EB virus has been found regularly in tissue culture cell lines established from lymphoma tissue. Although these tumors are quite rare, sero-logical evidence indicates that EB virus infection of humans is very common. At least some acute infections in young adults appear to be associated with infectious mononucleosis and many infections, particularly in infants and children, are probably clinically inapparent and may persist for years. Recently EB virus antibody titers have been reported to occur more frequently and in higher titer than in the general population in several other diseases. These are Boeck's sarcoid, systemic lupus erythematosus, Hodgkin's disease and lymphocytic leukemia. It will undoubtedly be difficult to determine whether EB virus is etiologically related to any of these disorders or whether patients with these lymphoproliferative disorders are merely more susceptible to EB virus infection or activation of latent infection. Establishing convincing evidence that EB virus causes any neoplastic disease will be difficult because, like other herpes viruses, EB virus appears to be ubiquitous in the population and to persist in patients for many years; and it does not appear to readily infect experimental animals.

Another tumor virus candidate found in humans is a recently discovered particle in human breast-milk. This particle has the same characteristics and unique morphologic features as the Bittner mammary tumor virus found in the breast-milk of mice. The occurrence of the human particles in the milk of American women has been reported to be highly correlated with family history of breast cancer, as is the Bittner virus in mice. Although no direct tests have been made to determine whether the two viruses are antigenically related, serum from women who have had breast cancer has been reported to block the tumorigenicity of the murine virus, suggesting the presence of antibody in breast cancer patients capable of neutralizing murine mammary tumor virus. The virus particles from human milk have also been shown to contain the RNA-dependent DNA polymerase enzyme recently shown to be present in all known RNA tumor viruses. The similarities of this human virus to the Bittner virus of mice make it a suspicious candidate for a human tumor virus. The kinds of evidence that will be needed to prove this will include demonstration of infectious virus or a virus determined antigen or nucleic acid in cells of human tumors, evidence for infection and tumor induction by the virus in experimental animals or cells in culture, and protection of humans by vaccination with a viral vaccine. Obviously some of these will not be easily or quickly done.

William S. Robinson, M.D.

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PROFESSIONAL COURTESY

The following guidelines are offered as suggestions to aid physicians in resolving questions related to professional courtesy.

1. Where professional courtesy is offered by a physician but the recipient of services insists upon payment, the physician need not be embarrassed to accept a fee for his services.
2. Professional courtesy is a tradition that applies solely to the relationship that exists among physicians. If a physician or his dependents have insurance providing benefits for medical or surgical care, a physician who renders such service may accept the insurance benefits without violating the traditional ethical practice of physicians caring for the medical needs of colleagues and their dependents without charge.
3. In the situation where a physician is called upon to render services to other physicians or their immediate families with such frequency as to involve a significant proportion of his professional time, or in cases of long-term extended treatment, fees may be charged on an adjusted basis so as not to impose an unreasonable burden upon the physician rendering services.
4. Professional courtesy should always be extended without qualification to the physician in financial hardship, and members of his immediate family who are dependent upon him.

PROFESSIONAL COURTESY BEYOND FELLOW PHYSICIANS and THEIR DEPENDENTS

Ethical custom and tradition have suggested the extension of professional courtesy to fellow physicians and members of their immediate families. As a matter of private determination some physicians have extended this practice variously to clergymen, teachers, nurses, assistants to physicians and others in the health care field. The extension of professional courtesy beyond fellow physicians and members of their immediate families is a matter of discretion to be decided by the individual physician in his own practice and in his own community.

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How Medical Students Are Being Taught

William A. Sodeman, M.D., Chairman of the Council on Medical Education

Most members of the House of Delegates graduated from medical school thirty or forty years ago. They have seen and participated in many changes in medical practice. The changes that have occurred in medical education in this period have been equally dramatic.

These changes in medical education have resulted from many influences, some arising within the medical schools, some outside them. It is believed that neither the general public nor the medical profession fully appreciate the magnitude and the significance of these changes.

It seemed to the Council on Medical Education that it would be worthwhile to prepare for the House of Delegates a brief report summarizing the changes that have occurred in medical education in recent years. The accompanying report has been prepared with that in mind. It is limited largely to curricular changes in undergraduate medical attention.

The Flexner Report in 1910, based on a study of medical education in the United States and Canada by the Carnegie Foundation for the Advancement of Teaching, a study for which the American Medical Association was largely responsible, had a dramatic influence on medical education. Its major effect was to move medical education into the universities and greatly increase its scientific component.

The Standard, Post-Flexner Medical Education

During the period of standardization in medical education that followed the Flexner Report, medical schools typically required three years of college preparation, although they tended to favor students who had spent four years in college, and a large and increasing proportion of students entering medical school had done so. In addition to specifying the minimum duration of college preparation, medical schools customarily required certain courses, mainly in biology, chemistry, and physics.

The medical school curriculum occupied four academic years extending over a little less than four calendar years, from September of one year until June of the fourth year following. The academic year typically was of 36 to 38 weeks duration with about 12 weeks free in the summer.

The four-year curriculum was divided fairly evenly into two periods. The first two years were devoted largely to the basic sciences of anatomy, biochemistry, physiology, microbiology, pharmacology, and pathology. Ordinarily, a little instruction in physical diagnosis and some introduction to psychiatry were included, but there was little contact with patients.

The third and fourth years were devoted to clinical training, including instruction in medicine, surgery, obstetrics-gynecology, pediatrics, psychiatry, and the various medical and surgical specialties. The medical schools were organized on a departmental basis, and instruction was entirely departmental. Clinical instruction usually took place largely or entirely in the medical school's major teaching hospital. The hospital might or might not be owned by the medical school, but instruction was thoroughly under the control of the school's faculty and, to an increasing extent, provided by the full-time faculty.

Although the thirty- or forty-year period, beginning in about 1920, was characterized by a high degree of uniformity in the undergraduate curriculum in American medical schools, major changes occurred in this period in the duration and importance of the training being pursued following receipt of the M.D. degree. Originally, the M.D. degree signified qualification to practice medicine. However, by the late Twenties, medical school graduates in the United States customarily were spending at least a year in a hospital internship, ordinarily of the rotating type. As time went on, American medical school graduates tended to spend more and more time in graduate training, the year's internship coming to be followed by residency programs of two to five or more years duration for training in the various specialties. Only the general practitioner went into practice immediately following a one-year internship. Gradually, a few residency programs for the training of general practitioners developed and, finally, family practice became a full-fledged specialty with three years of post-M.D. training required.

The Beginning of Change in Medical School Curricula

The period following about 1950 saw a tremendous expansion in research in American medical schools and increased emphasis upon the scientific component of medical education. However, at the same

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Editor's Note: This was a Report of the Council on Medical Education of the AMA to the House of Delegates at its June, 1971 meeting.

time, medical schools began to be seriously concerned about their curricula and their teaching methods, and undertook experimentation with and revision of them. Perhaps the first major break with the traditional undergraduate medical school curriculum came with the introduction of a new curriculum at Western Reserve University School of Medicine in 1952. As time went on, revision of the curricula involved more and more medical schools, and the changes became greater and more significant. Now it is virtually impossible to find in any medical school what would have been considered in 1950 an orthodox curriculum.

Modern Curricular Changes

Major features of the present curricula stem from a greater concern with the provision of medical care and with the preparation of students to render medical care. Although the teaching programs vary considerably from school to school, the curricular changes follow a fairly common pattern, differing from one another in degree, rather than in kind. The following are fairly typical of the curricular changes that have occurred in recent years:

1. The introduction of significant contact with patients early in curriculum.
2. The introduction and extension of interdepartmental teaching. An example might be a course in neural sciences, with participation by anatomists, physiologists, biochemists, neurologists, and neurosurgeons.
3. An increase in the use of visual aids and self-instruction methods of various sorts.
4. A decrease in the total amount of scheduled classroom time. Whereas, formerly, medical students in the basic science years might actually be in classes as many as 44 hours weekly, now, 25 to 30 hours is more typical. This reduction in time has been accomplished mainly through reducing the basic science instruction, particularly the laboratory instruction. Commonly, basic science teaching now occupies about a year, instead of the former two years.
5. A reduction in required courses, and an increase in electives. Formerly, there were few elective courses with every medical student following the same curriculum. Now, typically, about one-quarter of the curricular time is given over to electives distributed more or less evenly throughout the curriculum, although tending to be concentrated toward the latter part. In a number of schools, the entire fourth year is elective. Some schools have developed so-called "tracks." For example, a student may choose a family practice track, a medical or surgical specialty track, a behavioral track, or a medical science track. For the first year or year and one-half of the curriculum, the students are all exposed to a basic core of material mostly composed of the basic sciences. After this core is completed, each student may choose one track to pursue. Formerly, graduates might vary somewhat in the degree of competence they had acquired, but they had all been exposed to virtually the same subject matter. Now, different students graduating from the same medical school may vary greatly in the subject matter that they have been taught.
6. In some schools, provision for the fourth elective year to be spent in what essentially is a straight internship in the school's teaching hospital.
7. The development of programs directed toward the training of family physicians.
8. The involvement of university departments outside the medical school in the teaching of the basic medical sciences. In a university in which the medical school is on the university campus, university departments, such as biology and chemistry, may take responsibility for providing instruction of medical students in one or more of the basic sciences. In other universities, some of the medical students may study the basic sciences in the medical school itself, while others may receive their basic science training in college departments of the university of which the medical school is a part, or of other universities.
9. More widespread involvement of the social sciences in the medical school curricula.
10. A tendency to more widespread and effective utilization in the teaching program of clinical facilities in addition to the school's major teaching hospital. The school may use community hospitals, neighborhood health centers, and other types of community facilities, exposing the student to a variety of patterns of delivery of medical care, rather than restricting his exposure to medicine as practiced in the teaching hospital. This involves an increase in the use of part-time and volunteer faculty members.
11. A tendency of the medical school to assume responsibility for the development and operation of programs involving the provision of medical care to certain population groups in order to provide clinical experience for the student under conditions that would not otherwise be available to him.
12. Encouragement of students to progress through the curriculum at different rates, accompanied

by efforts to devise better methods of assessing competence that there may be more emphasis on mastery of material and less emphasis on the amount of time spent in school. The orthodox grading system is being abandoned or its significance greatly curtailed.

13. A decrease in the total duration of undergraduate medical education. In some schools, it has long been possible for a few exceptional students to obtain the M.D. degree in three years. This is becoming more common. In a number of schools, it is now possible for a student to select either a three- or four-year schedule. A few schools have adopted a curriculum providing for routine graduation in three years. These three-year curricula, whether optional or usual, ordinarily are more rigorous than the four-year curricula, usually involving instruction during what previously was the long summer vacation. In some schools, the students enter in June or July, rather than in September. Consequently, the shortening of the curriculum from four to three years may involve a shortening of instruction only from about 36 to 32 or 33 months. Also, several schools have programs involving a relatively small number of highly selected students in which the premedical curricula are integrated in varying degree, and the total duration of the program between graduation from high school and receipt of the M.D. degree is shortened to six years or even less.
14. The organization of Departments of Research in Medical Education, the faculty members of which are competent in and devote themselves to evaluating the effectiveness of teaching methods and efforts to improve them.

Changes in Medical Schools Associated with the Curricular Revisions

Associated with these changes in curriculum and teaching methods, other recent developments commonly found in the medical schools are:

1. Expansion of enrollment, encouraged and, in part, made possible by some of the curricular changes mentioned.
2. Attention to increasing enrollment of students from groups seriously under-represented in the American medical profession. This involves changes in admission standards, provision of remedial programs, arrangements for students to progress through the curriculum at different rates, and augmentation of financial aid.
3. The assumption by students of a substantial role in the operation and governance of the medical school, in part, through membership on various committees including, in some instances, the executive committee.

The Impact of the Changes

These changes add up to a revolution in medical education only slightly less significant than the revolution that followed the Flexner Report. In large measure, they represent an effort to relate the education of medical students more directly to the provision of medical care and to the health problems of society.

A major question posed by these changes in medical education concerns the significance of the M.D. degree itself in the light of the multiplicity of curricula which different medical students may have pursued. It has been suggested that the M.D. degree should be interpreted as signifying mastery of that core of material in which every physician should be competent, whatever branch of medicine he might pursue. For many years, the degree has not been regarded as indicating qualification for the practice of medicine, and its receipt has commonly been followed by one or more years of graduate training. If the M.D. degree indicates only mastery of a basic core of knowledge, it may be possible to award it after three years in medical school and possibly six years after high school. It may be desirable to modify medical practice acts to specify minimum post-M.D. training by reference to specialty board requirements or, possibly, number of years of additional training.

Appendix

To illustrate the curricular changes occurring, there is listed below a sampling of programs in effect or under development involving a substantial reduction in time required for receipt of the M.D. degree. These programs are listed in three groups:

1. Programs involving a reduction in time brought about primarily through integration of premedical and medical training.
2. Programs in which the usual four years in medical school are reduced to three calendar years.
3. Programs in which the last medical school year has been converted into an internship, with or without award of the M.D. degree prior to this internship year.

Programs Involving a Reduction in Time Brought About Primarily Through Integration of Premedical and Medical Training

1. Several years ago, Boston University School of Medicine drastically altered its curriculum with utilization of the summers in the teaching pro-

gram. Mainly through reduction in the premedical period, a few students have completed the medical course only a little more than five years after graduation from high school.

2. At Johns Hopkins University School of Medicine, a special program has been inaugurated in which students who have had only two years in college are graduated from medical school in five more years, making a total of seven years after high school, rather than the eight years usually required.
3. For a number of years, there has been in effect a program involving Jefferson Medical College and Pennsylvania State University in which a few highly selected Penn State students may combine their medical school and college work, minimize vacations, and proceed through college and medical school in slightly more than five years. The time gained is mainly at the expense of premedical work and vacation, with little change in the medical school curriculum.
4. For a relatively few unusually competent and carefully selected students, Northwestern University has a program involving integration of premedical and medical training, leading to the M.D. degree six years after high school.
5. Florida State and Florida A and M Universities are developing a program with the University of Florida College of Medicine in which "exceptionally good students may complete the premedical requirements and the first year of medical school in four years, rather than the five ordinarily required." They would qualify for the M.D. degree in three more years.
6. The University of Missouri, Kansas City School of Medicine is undertaking a highly unorthodox program involving an intermingling of premedical and medical training with the time between graduation from high school and receipt of the M.D. degree reduced to seven, or for some students, six years.
7. Michigan State University College of Human Medicine opened in 1966 with a highly integrated six-year program, including premedical and basic medical science training. It is converting to a degree-granting institution, and a few students will be able to receive the M.D. degree seven years after high school.

Programs in Which the Usual Four Years in Medical School are Reduced to Three Calendar Years

1. The University of Nebraska has started a special group of students with both an independent, separate curriculum and a special designation "augmentation class." This class will attend medical school for 132 weeks starting in the spring of the year and graduating three years later. The length of training is roughly comparable to four academic years.
2. For many years, the University of Texas Medical Branch at Galveston has provided opportunity for selected students, outstanding academically, to complete medical school in a little over three years. Much of the time is gained by curtailing vacation time.
3. The University of California, Irvine, California College of Medicine plans to provide an opportunity for "honor students" to graduate in three years. Presumably, this will involve entering in the fall and graduating 33 months later. There is some elimination of curricular material but most of the time is saved by curtailing vacation. Other students may graduate in three and a half years by shortening vacation.
4. The curriculum of the University of California School of Medicine, San Francisco comprises 13 quarters which, by eliminating the summer vacation, may be completed in a little more than three years.
5. Dartmouth Medical School, which formerly was a two-year basic science school, has inaugurated a program in which the M.D. degree can be obtained in three years, with the summer vacations largely eliminated.
6. The University of Kansas is planning a program, to be inaugurated in 1971, which will be highly variable in duration, some students entering in the spring and graduating three years later.
7. In the program at Michigan State University College of Human Medicine, listed in the group involving integration of premedical and medical training, there is some reduction in the duration of medical school training, as well as integration of premedical and medical training.
8. The Ohio State University College of Medicine is inaugurating a program in which students enter medical school in July and graduate about three years later. The time is saved mainly through curtailment of vacations.
9. The new Medical College of Ohio at Toledo has an academic year of 46 weeks with graduation possible in three, four, or five years.
10. The University of Tennessee College of Medicine has an elective program in which students, through the elimination of vacation periods, may graduate in three and one-quarter calendar years.

Programs in Which the Last Medical School Year Has Been Converted Into an Internship With or Without Award of the M.D. Degree Prior to This Internship Year

1. At Johns Hopkins University School of Medicine, there is available an "accelerated program," utilizing summer sessions "that allows students to take an internship during the final year of the M.D. program."
2. The University of Iowa is planning to convert the fourth year into an internship.
3. The University of Minnesota has an optional three-year program followed by a required internship in the university hospital.

Welcome, New Members

New Haven County

Philip B. Arnold, M.D., Gaylord Hospital, Wallingford, Conn. 06492

Richard J. Barse, M.D., 1308 Chapel Street, New Haven, Conn. 06511

Paul J. Coppola, M.D., 100 York Street, New Haven, Conn. 06511

Victor K. DeDios, M.D., 235 Bishop Street, New Haven, Conn. 06511

Antonio J. Dy, M.D., 106 Park Street, New Haven, Conn. 06511

Jon M. Fessel, M.D., 111 Park Street, New Haven, Conn. 06511

James F. Flint, M.D., 578 Watertown Avenue, Waterbury, Conn. 06708

Stanley I. Friedman, M.D., 219 West Main Street, Meriden, Conn. 06450

Jeanne E. Hicks, M.D., c/o Albertus Magnus College, 790 Prospect Street, New Haven, Conn. 06511

Marc A. Hurzeler, M.D., 315 Whitney Avenue, New Haven, Conn. 06510

Michael A. Kass, M.D., 789 Howard Avenue, New Haven, Conn. 06504.

Vasudev V. Kulkarni, M.D., 270 Amity Road, Woodbridge, Conn. 06525.

Philip H. K. Kuo, M.D., 475 Chase Parkway, Waterbury, Conn. 06708.

Henry G. Magendantz, M.D., 17 Hillhouse Avenue, New Haven, Conn. 06520.

Jack D. Maleh, M.D., Webb Manor, Apt. 14, Gravel Street, Meriden, Conn. 06450.

Radoslav Maric, M.D., 56 Minerva Street, Derby, Conn. 06418.

Ann F. Milano, M.D., 200 Fountain Street, New Haven, Conn. 06515.

Madelyn F. Milano, M.D., 181 Melba Street, Milford, Conn. 06460.

Mary M. Miller, M.D., 577 South Main Street, Cheshire, Conn. 06410.

Rafael S. Pascual, M.D., 333 Cedar Street, New Haven, Conn. 06510.

Edgardo P. Ragaza, M.D., 670 George Street, New Haven, Conn. 06511.

Brian F. Rigney, M.D., Hospital of St. Raphael, New Haven, Conn. 06511.

Martin C. Robson, M.D., 333 Cedar Street, New Haven, Conn. 06510.

Stephen A. Ross, M.D., 150 Sargent Drive, New Haven, Conn. 06511.

Yung H. Son, M.D., 789 Howard Avenue, New Haven, Conn. 06504.

Raymond E. Sullivan, M.D., 1211 West Main Street, Waterbury, Conn. 06708.

Lawrence J. Wartel, M.D., 186 Sherman Avenue, New Haven, Conn. 06511.

Hartford County

Vincent Baptist, M.D., 291 Queen St., Bristol, Conn. 06010.

Richard B. Berkley, M.D., 61 So. Main St., West Hartford, Conn. 06107.

Chang S. Choi, M.D., 43 Varden Rd., West Hartford, Conn. 06117.

Thomas J. Conklin, M.D., 200 Retreat Ave., Hartford, Conn. 06106.

Charles M. Dickson, M.D., 85 Jefferson St., Hartford, Conn. 06106.

Robert E. Dragon, M.D., 73 Cedar St., New Britain, Conn. 06052.

Jerome E. Evans, M.D., 200 Retreat Ave., Hartford, Conn. 06106.

Pacifico G. Flores, M.D., Gaylord Hospital, Wallingford, Conn. 06492.

Henry A. Futterman, M.D., 85 Jefferson St., Hartford, Conn. 06106.

Firooz Golkar-Sisani, M.D., 71 Haynes St., Manchester, Conn. 06040.

R. James Graydon, II, M.D., 85 Jefferson St., Hartford, Conn. 06106.

Lee I. Hoffman, M.D., 758 Farmington Ave., West Hartford, Conn. 06119.

Yale H. Kablotsky, M.D., Bradley Memorial Hosp., Southington, Conn. 06489.

Robert A. Kramer, M.D., U.Conn. Sch. of Medicine, Farmington, Conn. 06032.

Leslie B. Lindenberg, M.D., 85 Jefferson St., Hartford. Conn. 06106.

Alan H. Manas, M.D., 100 Constitution Plaza, Hartford, Conn. 06106.

Howard W. Meridy, M.D., 85 Jefferson St., Hartford, Conn. 06106.

Robert B. Nathanson, M.D., 61 South Main Street, West Hartford, Conn. 06107.

Jaroslav Oceretko, M.D., 30 Woodland Street, Hartford, Conn. 06105.

Paul B. O'Connell, M.D., 239 Silas Deane Highway, Wethersfield, Conn. 06109.

Walter L. O'Hayre, M.D., SNET Co., 55 Trumbull Street, Hartford, Conn. 06103.

John G. O'Hurley, M.D., 240 Ashley Street, Hartford, Conn. 06105.

Hugh E. O'Reilly, M.D., 73 Cedar Street, New Britain, Conn. 06052.

John A. Pierce, M.D., 181 E. Center Street, Newington, Conn. 06111.

Mervyn L. Rimai, M.D., 1 Regency Drive, Bloomfield, Conn. 06002.

Gerald D. Ritland, M.D., UConn.-McCook Hospital, Hartford, Conn. 06112.

Lloyd E. Roberts, M.D., 136 Retreat Avenue, Hartford, Conn. 06106.

Russell W. Robertson, M.D., 85 Jefferson Street, Hartford, Conn. 06106.

Paul D. Robinson, M.D., 151 Farmington Avenue, Hartford, Conn. 06115.

Donald A. Rotenberg, M.D., 85 Jefferson Street, Hartford, Conn. 06106.

Joseph F. Scholand, M.D., 300 Kensington Avenue, New Britain, Conn. 06051.
Ali Shakibai, M.D., 315 E. Center Street, Manchester, Conn. 06040.
Balazs B. Somogyi, M.D., 98 Main Street, Southington, Conn. 06489.
Jane P. Srinivasan, M.D., 6 Revere Drive, Bloomfield, Conn. 06002.
Paul R. C. Sullivan, M.D., 85 Jefferson Street, Hartford, Conn. 06106.
George J. Swartz, M.D., 300 Kensington Avenue, New Britain, Conn. 06051.
Hany S. Wahba, M.D., 75 High Street, Bristol, Conn. 06010.
Joseph A. Welna, M.D., 73 Cedar Street, New Britain, Conn. 06052.
Albert Wolkoff, M.D., 81 South Main Street, West Hartford, Conn. 06107.
Peter M. Zeman, M.D., 200 Retreat Avenue, Hartford, Conn. 06106.
Richard S. Zimmerman, M.D., 49 Connecticut Boulevard, East Hartford, Conn. 06108.

Fairfield County

Gordon R. Alena, M.D., 3272 Main Street, Stratford, Conn. 06497.
Joel S. Albert, M.D., 8 Stonehedge Road, Weston, Conn. 06883.
Milton F. Armm, M.D., 1438 Park Avenue, Bridgeport, Conn. 06604.
Lewis M. Bader, M.D., 881 Lafayette Street, Bridgeport, Conn. 06604.
Stephen J. Balsam, M.D., 92 Locust Avenue, Danbury, Conn. 06810.
David S. Berger, M.D., 24 Hospital Avenue, Danbury, Conn. 06810.
Joel M. Blumberg, M.D., 8 West End Avenue, Old Greenwich, Conn. 06870.
Joyce A. Bockar, M.D., 146 Shadow Ridge Road, Stamford, Conn. 06905.
Christopher Boreyko, M.D., 562 Boston Avenue, Bridgeport, Conn. 06610.
Harry J. Brown, M.D., 69 East Avenue, Norwalk, Conn. 06851.
Mary J. Cardin, M.D., 50 Ridgefield Avenue, Bridgeport, Conn. 06610.
Shashi K. B. Chadda, M.D., St. Vincent's Hospital, Bridgeport, Conn. 06604.
Daniel W. Chan, M.D., 108 East Avenue, Norwalk, Conn. 06851.
Girard A. Chapnick, M.D., 153 East Avenue, Norwalk, Conn. 06851.
Clifford C. Chu, M.D., 108 East Avenue, Norwalk, Conn. 06851.
Nongnuch L. Chumnanvech, M.D., Park City Anesth. Assoc., Fairfield, Conn. 06430.
Howard R. Cohen, M.D., 2820 Main Street, Bridgeport, Conn. 06606.
Ivan S. Cohen, M.D., 1224 Post Road, Fairfield, Conn. 06430.
William B. Cohen, M.D., 1305 Post Road, Fairfield, Conn. 06430.
Wayne F. Crossman, M.D., 15 Laurie Road, Trumbull, Conn. 06611.
Peter Czuczka, M.D., 129 Kings Highway No., Westport, Conn. 06880.
Bharat J. Dalal, M.D., 108 East Avenue, East Norwalk, Conn. 06851.
Richard L. Danehower, M.D., 49 Lake Avenue, Greenwich, Conn. 06830.
Joseph P. D'Apice, M.D., 545 Mill Plain Road, Fairfield, Conn. 06430.
Ralph F. Deutchman, M.D., 47 Oak Street, Stamford, Conn. 06905.
Neil P. Dreyer, M.D., 19 Third Street, Stamford, Conn. 06902.
William J. Elder, M.D., 1200 Bedford Street, Stamford, Conn. 06905.
Robert B. Erichson, M.D., 98 Hoyt Street, Stamford, Conn. 06905.
Frank N. Federico, M.D., 2660 Main Street, Bridgeport, Conn. 06606.
Ross D. Frank, M.D., Ituri Towers, Greenwich, Conn. 06830.
I. Bruce Gordon, M.D., 173 East Avenue, New Canaan, Conn. 06840.
David I. Grayer, M.D., 4747 Main Street, Bridgeport, Conn. 06606.
Robert A. Hands, Jr., M.D., 36 Sherwood Place, Greenwich, Conn. 06830.
Ann H. Hines, M.D., 82 South Street, Danbury, Conn. 06810.
Anthony H. Horan, M.D., 131 Kings Highway North, Westport, Conn. 06880.
Kwang S. Jee, M.D., Fullmar Lane, Norwalk, Conn. 06850.
Stephen R. Katz, M.D., 1700 Post Road, Fairfield, Conn. 06430.
Frederick A. Kayal, M.D., Brookfield Prof. Ctr., Brookfield, Conn. 06804.
Roger H. Kaye, M.D., 5 Elmcrest Terrace, Norwalk, Conn. 06850.
George P. Kelly, M.D., 1193 Stratfield Road, Fairfield, Conn. 06430.
Alan I. Lebowitz, M.D., 31 Strawberry Hill Avenue, Stamford, Conn. 06902.
Robert L. Leighton, M.D., 1305 Post Road, Fairfield, Conn. 06430.
Edward M. Lintz, M.D., 325 Reef Road, Fairfield, Conn. 06430.
Kenneth J. Lippman, M.D., 162 Kings Highway No., Westport, Conn. 06880.
Richard G. Lovanio, M.D., 3715 Main Street, Bridgeport, Conn. 06606.
Edward M. Molloy, M.D., 1735 Post Road, Fairfield, Conn. 06430.
Anthony Musto, M.D., 50 Ridgefield Avenue, Bridgeport, Conn. 06610.
Jutta M. Nemec, M.D., 1 Heusted Drive, Old Greenwich, Conn. 06870.
Jose P. Niell, M.D., 1799 Summer Street, Stamford, Conn. 06902.
Stuart N. Novack, M.D., 83 East Avenue, Norwalk, Conn. 06851.
Richard R. Paquette, M.D., 75 West Street, Danbury, Conn. 06810.
Joseph W. Placer, M.D., Park City Hospital, Bridgeport, Conn. 06606.
John L. Pool, M.D., 24 Stevens Street, Norwalk, Conn. 06856.
Alan M. Rapoport, M.D., 125 Strawberry Hill Avenue, Stamford, Conn. 06902.
Joel M. Rein, M.D., 8 West End Avenue, Old Greenwich, Conn. 06870.
Ortwin F. Rusch, M.D., 2820 Main Street, Bridgeport, Conn. 06606.
Carlotta L. Schuster, M.D., Silver Hill Foundation, New Canaan, Conn. 06840.
Henry A. Sellner, M.D., 84 Locust Avenue, Danbury, Conn. 06810.
Sheila A. Shanahan, M.D., 20 Dayton Avenue, Greenwich, Conn. 06830.
Fred D. Sheftell, M.D., 138 Saw Mill Road, Stamford, Conn. 06903.
Ruth L. Smolen, M.D., 1177 Post Road, Fairfield, Conn. 06430.
Stephen Stein, M.D., 125 Kings Highway No., Westport, Conn. 06880.

H. Lyle Stotts, M.D., Bridgeport Hospital, Bridgeport, Conn. 06610.

Howard L. Taubin, M.D., 114 State Street, Bridgeport, Conn. 06603.

Gary L. Townsend, M.D., Danbury-Newtown Road, Newtown, Conn. 06470.

James R. Wilson, Jr., M.D., 2 Glenville Road, Greenwich, Conn. 06830.

Henry C. C. Yu, M.D., 2660 Main Street, Bridgeport, Conn. 06606.

Windham County

Lamson Blaney, M.D., Box 154, Mansfield Center, Conn. 06250.

James D. Flynn, M.D., Windham Community Memorial Hospital, Willimantic, Conn. 06226.

Douglas M. Griswold, M.D., 150 Mansfield Avenue, Willimantic, Conn. 06226.

Alexis Khoury, M.D., 11 Spring Street, Danielson, Conn. 06239.

Robert I. Moskowitz, M.D., 70 Mansfield Avenue, Willimantic, Conn. 06226.

Leo L. Oxley, M.D., Box 36, Storrs, Conn. 06268.

New London County

Usim Odim, M.D., Norwich Hospital, Norwich, Conn. 06360.

Tolland County

Herbert J. DiMeola, M.D., Johnson Memorial Hospital, Stafford Springs, Conn. 06076.

Paul Gramling, M.D., Rockville General Hospital, Rockville, Conn. 06066.

Patrick J. Greene, M.D., Johnson Memorial Hospital, Stafford Springs, Conn. 06076.

Middlesex County

Abad A. Abkaronius, M.D., C.V.H., Box 279, Middletown, Conn. 06457.

Theodore W. Maron, Jr., M.D., Middlesex Turnpike, Essex, Conn. 06426.

Eleanor A. Pringle, M.D., Killingworth Road, Higganum, Conn. 06441.

Litchfield County

Richard N. Filinson, M.D., 64 Main Street, Winsted, Conn. 06098.

Robert G. Fletcher, M.D., Winsted Hospital, Winsted, Conn. 06098.

Robert A. Scalice, M.D., 30 Peck Road, Torrington, Conn. 06790.

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Substitution of Surgeon Without Patient's Knowledge or Consent

The Principles in Section 1 state that the principal objective of the medical profession is to render service to humanity with full respect for the dignity of man. To have another physician operate on one's patient without that patient's consent, and without his knowledge of the substitution, is a fraud and deceit and a violation of a basic ethical concept. The patient as a human being is entitled to choose his own physician and he should be permitted to acquiesce in or refuse to accept the substitution.

The surgeon's obligation to the patient requires him to perform the surgical operation: (1) within the scope of authority granted him by the consent to the operation; (2) in accordance with the terms of the contractual relationship; (3) with complete disclosure of all facts relevant to the need and the performance of the operation; and (4) to utilize his best skill in performing the operation.

It should be noted that it is the operating surgeon to whom the patient grants his consent to perform the operation. The patient is entitled to the services of the particular surgeon with whom he contracts. The surgeon in accepting the patient obligates himself to utilize his personal talents in the performance of the operation to the extent required by the agreement, creating the physician-patient relation. He cannot properly delegate to another the duties which he is required to perform personally.

Under the normal and customary arrangement with private patients, and with reference to the usual form of consent to operation, the surgeon is obligated to perform the operation himself, and he may use the services of assisting residents or other assisting surgeons to the extent that the operation reasonably requires the employment of such assistance. If a resident or other physician is to perform the operation under the guidance of the surgeon, it is necessary to make a full disclosure of this fact to the patient, and this should be evidenced by an appropriate statement contained in the consent.

If the surgeon employed merely assists the resident or other physician in performing the operation, it is the resident or other physician who becomes the operating surgeon. If the patient is not informed as to the identity of the operating surgeon, the situation is "ghost surgery."

An operating surgeon is construed to be a performing surgeon. As such his duties and responsibilities go beyond mere direction, supervision, guidance, or minor participation.

He is not employed merely to supervise the operation. He is employed to perform the operation. He can properly utilize the services of an assistant to assist him in the performance of the operation. But he is not performing the operation where his active participation consists of guidance or standby responsibilities in the case of an emergency.

Opinions and Reports, Judicial Council of the A.M.A.

Setting National Priorities—The 1974 Budget*

Administration Proposals

Many of the major grants for health services are being terminated or reduced. It is useful to think of these grants in two categories. First, there are grants under which the federal government shares the construction and operating costs of various kinds of public health services and assists state and local public health agencies in controlling communicable diseases. The administration approach seems to have been: reduce or eliminate most federal programs that support specific kinds of health services (except for the drug abuse program, which is expanded); provide continuing general support, at or slightly below prior levels, to state and local public health agencies for health services and disease control but increase state discretion as to the use of funds; and retain federal control over the programs that provide special health services for poor neighborhoods in inner cities and rural areas.

Under this approach the Hill-Burton grants for hospital construction were eliminated; grants for community mental health centers and alcoholism clinics will be phased out gradually as long-term agreements for federal support expire; and those grants for maternal and infant care under which the federal government currently selects the projects to support will be converted into state formula grants. On the other hand, the federal government will continue unchanged its project grant program for neighborhood health centers and other health services in poverty areas.

In the second category of health grants, those for planning, innovation, and development, a similar approach was followed. The $125 million regional medical program was terminated. Under this program the federal government supported, on an individual project basis, regional cooperative efforts (usually led by the major medical schools in a region) for such purposes as disseminating knowledge of up-to-date medical techniques and coordinating planning for the use of complex medical technology. On the other hand, the broad grants to state health agencies for planning their own public health programs were retained, after a slight cut, as were federal grants for research and development in health services.

Alternative Approaches

It is impossible to discuss the future of federal grants for health services except in the context of the availability of health insurance. If a federally supported health insurance program that covered the poor and near-poor fairly comprehensively were enacted, some of the current grants for support of various kinds of health services would be unnecessary. That is, an institution that provided treatment could charge for its services and people could use their insurance to pay the charges.

With the availability of such insurance, neighborhood health centers now supported by federal grants could look to patient charges for their financing. Similarly, community mental health centers, which now receive federal grants for construction and staffing, could derive part of their support from such charges. The latter institutions perform three functions. They provide an alternative and generally preferred means of caring for many of the long-term mentally ill who were previously confined to large state hospitals; they undertake community activities such as mental health education; and they provide mental health services to a broader segment of the population who do not need long-term intensive care. It is this third service for which they could recover charges from patients supported by health insurance. The other two functions, traditionally financed by state governments, would have to continue to be underwritten by public support.

Providing adequate financing to people for the purchase of health care, however, does not eliminate the need for federal intervention. Experience has amply demonstrated that the existing medical care system does not respond quickly to new demands placed upon it and that it leaves poor urban and rural areas without adequate health resources. Without specific action by the federal government, the introduction of a national health insurance program may accelerate the rise in medical prices and divert resources away from poor areas which already suffer from a shortage of health care. Two kinds of reforms are needed: first, federal developmental support for new types of medical care delivery which promise to use medical resources more effectively and distribute them more equitably; and second, federal incentives for health care personnel to locate in areas where such care is scarce and for an increase in the number of health professionals recruited from minority groups.

**Health Services*
Brookings Institution
1775 Massachusetts Avenue, N.W., Washington, D.C., 20036, $3.95.

There are five major kinds of innovation in the delivery of health care which the federal government now supports through some type of separate grant. Neighborhood health centers (principally in inner cities) and community mental health centers have been mentioned. Grants are also made for projects to improve health service delivery in remote rural areas. Although the financing of their ongoing operations could be fully or partly borne by charges levied on patients under a comprehensive health insurance system, it is unlikely that new centers would spring up without federal developmental support. Health maintenance organizations (HMOs), which provide comprehensive medical services for a defined population in exchange for a fixed annual payment for each person served, are believed by many to offer a promising means of improving the efficiency and effectiveness of the health care system.[3] The administration proposes $60 million in developmental grants in the 1974 budget, a sum it estimates will assist in the establishment or improvement of about 120 HMOs.

The Hill-Burton grant program has provided financial assistance for the construction of hospital bed facilities and, increasingly in recent years, for ambulatory and outpatient facilities at hospitals. This program is terminated in the 1974 budget. Its two basic objectives should be considered separately. More hospital beds are no longer needed; indeed, there are now too many in the United States. The occupancy rate in community hospitals has been declining since 1969 and is now below 80 percent. Not only does this excess capacity drive up the cost of medical care but it encourages hospital treatment of health problems that could be taken care of more efficiently and effectively on an outpatient basis — in doctors' offices, in clinics, or at home. There is, however, a need for expansion of outpatient and ambulatory care; it is often a better way of dealing with illness and is particularly important in poor sections of central cities, where there are few private physicians. But providing such support through construction grants is inefficient. Subsidizing construction leads to overinvestment in facilities and too little support for operation and maintenance.

Instead of these five separate grant programs — some supporting initial development, some ongoing services, and some capital construction — what is needed is a single broad grant program under which the federal government can furnish the seed money for the initiation and development of more effective means of delivering health care, according to the needs of particular areas and population groups. Under a federally supported health insurance system, the institutions developed should ultimately be required to meet the test of the marketplace. After the initial subsidized years they should make it on their own, at least in providing health care covered by insurance, financing the costs of such care (including the cost of capital) from fees. As time passes, the experience of different kinds of institutions should help the federal government judge which kinds of developmental grants to emphasize and which to reduce.

For all five of the areas concerned, the 1974 budget provides about $530 million in grants. Of that amount some $125 million represents the fiscal 1974 cost of carrying out long-term (eight-year) agreements to support community mental health centers; even though the administration proposes to phase this program out as the agreements expire, funds will have to be made available for a number of years to honor the agreements. Similarly, the total includes $135 million to carry out previous agreements on hospital construction under the terminated Hill-Burton program.

Under the alternative proposed here, the grants financing the delivery of ongoing services or the construction of facilities would be replaced with a new, flexible grant program for developmental purposes. With the need for expanding the availability of services in areas where they are inadequate and the acceleration of demands on the system resulting from a new health insurance system, total annual commitments of perhaps $500 million, to be reached by fiscal 1976, would be appropriate. Further expansion thereafter might be warranted depending on how successfully the new institutions meet the needs of the population they serve. The net additional cost of the new program would be about $250 million in fiscal 1976 and $225 million in 1978, over and above the expenditures projected by the administration.[4]

The development of new institutions for the improved delivery of health care would itself attract more physicians and allied health professionals into areas where such care is scarce, but several additional steps would contribute to this end.

Members of minority groups suffer particularly from lack of medical care, in part because many of them live in low-income areas and in part because of the shortage of medical personnel willing to serve inner city areas heavily populated by blacks and other minority groups. Federal efforts to increase the supply of medical personnel from minority groups would serve three purposes: providing members of these groups with greater professional opportunities; taking advantage of an underutilized resource — bright young people from minority groups — to increase the supply of medical personnel; and training people more likely to practice among minority groups. In a society where there were no distinctions of color or race, this last objective would be irrelevant. The problem of bringing additional health resources to the poor, whatever their race, would be the same. But until that point is reached, the availability of health care for minority groups may remain related to the availability of minority health personnel. Pursuit of these objectives would involve providing financial incentives for members of minority groups to attend medical and other health professional schools, and perhaps financial incentives to medical schools to admit a greater number of students from minority backgrounds. This effort, however, would increase the supply of medical services to minority communities only after a fairly long period of time. There is also a need, particularly in this interim period, for supporting programs training minority paraprofessional personnel to work in community health organizations. Since the cost of such training should not be part of the charges levied on insured patients, separate financial support by the federal government would be necessary. At the present time the costs of many community health organizations are higher than would be justified by the provision of medical services only, because these organizations provide on-the-job training for community residents in paraprofessional skills — efforts that should be separately financed and expanded as the number of community-based organizations increases. The additional incentives needed to support the entry into medical and dental schools of an additional 1,000 minority group members each year and paying for the training of 10,000 paraprofessional personnel a year in community health organizations would require added budgetary expenses of about $60 million.

The regional medical program (RMP), which the administration proposes to terminate, is a planning and innovation-spreading effort. There are fifty-six regional cooperative arrangements supported by $125 million in annual federal grants. According to the administration, "There is little evidence that on a nationwide basis the RMP's have materially affected the health care delivery system."[5]

It is difficult to gauge the validity of this judgment. Initially, the RMPs were established to upgrade the treatment of heart malfunction and defects, cancer, strokes, and kidney disease; subsequently, they were broadened to deal with more general improvements in the health care system. Ideally, they were to provide a mechanism by which medical schools and other leading medical centers in an area could take the leadership in improving health care in their section of the country. Performance has varied, obviously, from one to another, and performance is exceedingly difficult to measure. Moreover, health care in the United States is a $77-billion-a-year industry. That it cannot be revolutionized through the expenditure of $125 million a year on RMPs is hardly surprising, and not in itself an indictment of the program.

The planning, innovation, and knowledge-dissemination functions of the RMPs have several characteristics: (1) unlike service delivery programs they cannot be supported by the marketplace, even with insurance; (2) medical schools and other health centers have no funds to support such efforts on their own — continuing support must come from public sources; (3) the major need for improvements in health service delivery varies substantially from area to area; and (4) the funds now devoted to RMPs are large in comparison with what states budget for health planning and with other federal funds available for health planning and development purposes.

It is unlikely that RMPs will be continued with state funds once federal support is withdrawn. The federal government has provided the means of launching these new organizations. Simply withdrawing its support will virtually ensure that most of them disappear, whatever their merits. One alternative to the administration's proposal for eliminating the program is to combine RMP funds with the $148 million in federal funds now available to states and local communities for planning and carrying out their own comprehensive health service projects, thereby allowing each state a choice between continuing to support RMPs and devising other mechanisms for accomplishing the same purpose. This would add some $125 million a year to the budget proposed by the administration.

All of the above discussion assumes the introduction of a national health insurance scheme, which would, among other things, provide reasonably comprehensive coverage with zero or low deductibles and coinsurance for the poor. If such a plan is not adopted, a strategy that included termination of service grants to neighborhood health centers would not be workable, since the centers would then have few sources of financial support. Similarly, the administration's plans to terminate the Hill-Burton program and to phase out support for community mental health centers would lead to serious consequences for the centers and for the expansion of ambulatory facilities in urban hospitals.

If there is no comprehensive insurance plan, therefore, a second alternative must be considered. This would include continuation and expansion of service grants for neighborhood health centers, roughly tripling the level of support by 1978 and making possible a substantial increase in coverage for the low-income population served by these centers; continuation of service grants for community mental health centers; expansion of the HMO development grants from the $60 million provided in the 1974 budget to $100 million in 1976 and $200 million in 1978; and conversion of the Hill-Burton construction grants into a new kind of grant costing $150 million a year and designed to encourage more ambulatory treatment in urban hospitals. Supporting health service delivery through construction grants has the disadvantages discussed earlier. As a substitute, the federal government could agree to pay a specified portion of the annual costs of any expansion in ambulatory care and outpatient treatment undertaken by hospitals serving areas with large concentrations of low-income people. Loan guarantees for construction would be made available as necessary. If these grants proved successful in substantially increasing the delivery of outpatient services, federal support could be increased in later years.

The education and training program for minority health personnel and the integration of RMP funds with state comprehensive health grants would also be incorporated in this alternative. Measured in terms of outlays this alternative would add $465 million in fiscal 1976 and $945 million in fiscal 1978 to the outlays projected by administration proposals. (This alternative costs more than the first one principally because, in that approach, health insurance would pay for some of the services financed by grants in the second alternative.)

REFERENCES

3. See Charles L. Schultze and others, *Setting National Priorities: The 1973 Budget* (Brookings Institution, 1972), pp. 232-34, for a discussion of HMOs.

4. The relatively low net cost reflects the phasing in of the new programs as some of the old programs are phased out.

5. *The Budget of the United States Government — Appendix, Fiscal Year 1974,* p. 383.

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Josephine P. Lindquist
Associate Executive Director

Leonard R. Tomat
Assistant Executive Director
Scientific Activities

Summary of Actions
Council Meeting
Wednesday, November 14, 1973

I. Attendance

Present in addition to the Chairman, Dr. D. A. Grendon, and the Vice Chairman, Dr. C. W. Johnson, were: Drs. Root, Jr., Van Syckle, Spitz, Backhus, Brandon, Nolan, Granoff, Fabro, Hess, Bradley, Nemoitin, Ragland, Jr., James, Pelz, Krinsky, Dambeck, Roch, Hecklau, Kamens, Canzonetti, Rubinow, Magram, Freedman, Milles and Klare.

Also present were: Mrs. Lindquist, Mr. Tomat, Mr. Sweeney, Mr. Sullivan (AMA), Dean Fleeson (UConn) and Dr. Richards.

Absent were: Drs. Cramer, Gardner, Harkins, Barrett and Hastings.

II. Routine Business

Approval of Minutes

As published and distributed, it was VOTED to approve the minutes of the meeting of October 11, 1973.

Life Memberships

It was VOTED to approve applications for Life Membership received from the following eligible Active Members:

Max Bernanke, Southbury (NH) 1/1/74.
David I. Bloom, Enfield (M) 1/1/74.
Robert H. Campbell, Hartford (H) 1/1/74.
Burr H. Curtis, Newington (H) 1/1/74.
Walter J. Duksa, West Hartford (H) 1/1/74.
Donald J. McCrann, Hartford (H) 1/1/74.
Norman C. Margolius, Waterbury (NH) 1/1/74.
Anthony V. Nevulis, New Britain (H) 1/1/74.
Harry A. Parlato, New Britain (H) 1/1/74.
John J. Sayers, Hartford (H) 1/1/74.
Benjamin B. Whitcomb, Hartford (H) 1/1/74.

Election of Student Members

It was VOTED to elect to Student Membership seventeen Connecticut residents who are enrolled in medical schools in the United States. A list of those elected will be published in an early issue of the Journal.

Date of Next Meeting

The Chairman announced that the next meeting of the Council will be held on Thursday, January 17, 1974.

III. Old, New and Special Business
Resignations, Appointments, Etc.

(a) *Committee on Statewide Medical Planning:* Without vote, it was noted that Edward A. Rem, New Canaan, is no longer a member of the Committee for the reason that his membership as a CSMS-designate on the Advisory Board of CRMP terminated on 12/31/73 and that he does not wish to be considered for renomination.

(b) *CRMP Advisory Board and Executive Committee:* Notice was received from CRMP that changes have been made in the status of members of the CRMP Advisory Board and Executive Committee as follows: Edward A. Rem, New Canaan — term expired 12/31/72; J. Alfred Fabro, Torrington — resigned 11/73; Carl W. Johnson, Thompsonville — resigned 10/73. It was then VOTED to appoint replacement designates as follows:

Charles M. Krinsky, New London — Advisory Board — 1/1/73 - 12/31/75.
Kurt S. Pelz, Clinton — Advisory Board and Executive Committee — 1/1/74 - 12/31/76.
Guy W. VanSyckle, Danbury — Advisory Board — 1/1/74 - 12/31/76.
*Morris A. Granoff, New Haven — Advisory Board and Executive Committee — 1/1/72 - 12/31/74.
*Incumbent

(c) *Committee on Treatment and Rehabilitation; State Advisory Council on Alcohol Abuse and Alcoholism:* It was VOTED to appoint H. Robert Greenhouse, Hamden, to serve as a CSMS representative on the subject Committee.

The irritations of man's day are often reflected in his gut.

The causes of irritable colon and the diarrheal symptoms that often accompany it can be as diverse as the systemic and emotional irritations man is faced with daily.

Although the mucoid nature of stools and the occurrence of diarrheal episodes coincident with times of emotional stress may be valuable clues to the functional nature of the disorder, irritable colon must often be diagnosed by exclusion. Such diagnostic exploration takes time. Discovery of the nature of any emotional problems may take more. During that time, Lomotil® is an ideal agent for controlling diarrheal symptoms.

Lomotil tablets are small, easy to carry and easy to take. They act promptly and effectively. Secondary effects are relatively infrequent and, once the first force of the diarrhea is controlled, maintenance is frequently effective on as little as one fourth of the initial dosage.

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Each tablet and each 5 ml. of liquid contain:
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atropine sulfate . . . . 0.025 mg.

takes care of the gut issue in irritable colon

IMPORTANT INFORMATION: This is a Schedule V substance by Federal law; diphenoxylate HCl is chemically related to meperidine. In case of overdosage or individual hypersensitivity, reactions similar to those after meperidine or morphine overdosage may occur; treatment is similar to that for meperidine or morphine intoxication (prolonged and careful monitoring). Respiratory depression may recur in spite of an initial response to Nalline® (nalorphine HCl) or may be evidenced as late as 30 hours after ingestion. LOMOTIL IS NOT AN INNOCUOUS DRUG AND DOSAGE RECOMMENDATIONS SHOULD BE STRICTLY ADHERED TO, ESPECIALLY IN CHILDREN. THIS MEDICATION SHOULD BE KEPT OUT OF REACH OF CHILDREN.

Indications: Lomotil is effective as adjunctive therapy in the management of diarrhea.

Contraindications: In children less than 2 years, due to the decreased safety margin in younger age groups, and in patients who are jaundiced or hypersensitive to diphenoxylate HCl or atropine.

Warnings: Use with caution in young children, because of variable response, and with extreme caution in patients with cirrhosis and other advanced hepatic disease or abnormal liver function tests, because of possible hepatic coma. Diphenoxylate HCl may potentiate the action of barbiturates, tranquilizers and alcohol. In theory, the concurrent use with monoamine oxidase inhibitors could precipitate hypertensive crisis.

Usage in pregnancy: Weigh the potential benefits against possible risks before using during pregnancy, lactation or in women of childbearing age. Diphenoxylate HCl and atropine are secreted in the breast milk of nursing mothers.

Precautions: Addiction (dependency) to diphenoxylate HCl is theoretically possible at high dosage. Do not exceed recommended dosages. Administer with caution to patients receiving addicting drugs or known to be addiction prone or having a history of drug abuse. The subtherapeutic amount of atropine is added to discourage deliberate overdosage; strictly observe contraindications, warnings and precautions for atropine; use with caution in children since signs of atropinism may occur even with the recommended dosage.

Adverse reactions: Atropine effects include dryness of skin and mucous membranes, flushing and urinary retention. Other side effects with Lomotil include nausea, sedation, vomiting, swelling of the gums, abdominal discomfort, respiratory depression, numbness of the extremities, headache, dizziness, depression, malaise, drowsiness, coma, lethargy, anorexia, restlessness, euphoria, pruritus, angioneurotic edema, giant urticaria and paralytic ileus.

Dosage and administration: ***Lomotil is contraindicated in children less than 2 years old.*** Use only Lomotil liquid for children 2 to 12 years old. For ages 2 to 5 years, 4 ml. (2 mg.) t.i.d.; 5 to 8 years, 4 ml. (2 mg.) q.i.d.; 8 to 12 years, 4 ml. (2 mg.) 5 times daily; adults, two tablets (5 mg.) t.i.d. to two tablets (5 mg.) q.i.d. or two regular teaspoonfuls (10 ml., 5 mg.) q.i.d. Maintenance dosage may be as low as one fourth of the initial dosage. Make downward dosage adjustment as soon as initial symptoms are controlled.

Overdosage: Keep the medication out of the reach of children since accidental overdosage may cause severe, even fatal, respiratory depression. Signs of overdosage include flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia and respiratory depression which may occur 12 to 30 hours after overdose. Evacuate stomach by lavage, establish a patent airway and, when necessary, assist respiration mechanically. Use a narcotic antagonist in severe respiratory depression. Observation should extend over at least 48 hours.

Dosage forms: Tablets, 2.5 mg. of diphenoxylate HCl with 0.025 mg. of atropine sulfate. *Liquid,* 2.5 mg. of diphenoxylate HCl and 0.025 mg. of atropine sulfate per 5 ml. A plastic dropper calibrated in increments of ½ ml. (total capacity, 2 ml.) accompanies each 2-oz. bottle of Lomotil liquid.

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(d) *Nominations for Membership—Connecticut Hospital Planning Commission:* At the invitation of the CHPC, the Council VOTED to nominate four members of the Society of which CHCP will elect two to serve as members of the Commission: The nominees are:

Stuart Ragland, Jr., Colebrook
David L. Warren, Manchester
Franklin M. Foote, Wethersfield
Jerome K. Freedman, New Haven

David A. Grendon, Sharon, and E. Tremain Bradley, Norwalk, have served on the Commission as representatives of the Society for two consecutive terms and are, therefore, ineligible to succeed themselves at this time.

Report on CRMP — J. Aifred Fabro

It was VOTED to accept for filing a subject report submitted to the Council by Dr. Fabro at the meeting of 10/11/73 but held over for discussion and possible action to this meeting. Following a prolonged period of review of past and present CRMP relationships, CRMP's "grand strategy," funding, current objectives, Advisory Board composition, etc., it was VOTED to request the Committee on Statewide Medical Planning to evaluate the deficiencies in the delivery of health care in Connecticut, using Dr. Pelz's report and other sources, to prepare and submit to the Council a position paper on the subject (of deficiencies), and to advise as to the possibility of using the Connecticut Ambulatory Care Study "team" for a sequential effort. The apparent purpose of this action is to enable the Council (acting for the Society) to make a more positive input to CRMP policies and programming than has been possible on many occasions in the past.

Report — Committee on Accident Prevention and EMS

It was VOTED to accept for filing a report of the Committee on Accident Prevention and Emergency Medical Services which, in brief, apprised the Council of a pilot study of emergency medical services in several communities (Manchester, Rockville, Stafford Springs, Storrs and Willimantic) under the auspices of the Connecticut Advisory Committee on Emergency Medical Services, and recommended that approval be granted for the CSMS Committee to "involve itself" in the project. It was further VOTED to approve both the report and recommendation of the Committee.

Budget for Fiscal 1974 and Related Matters

It was VOTED to accept for filing the proposed budget for fiscal 1974, as prepared by the Fiscal Subcommittee, and a letter from the Executive Director concerning his continuance in office following the completion of this third five-year term in mid-May 1974. In open session the Council reviewed the proposed budget with explanation of various items being furnished by the Treasurer, Hilliard Spitz. Then, in executive session, the Council considered and acted upon the Subcommittee's recommendations regarding wages, salaries, honoraria, etc. and upon the communication from the Executive Director regarding renewal of his agreement with the Council. Returning to open session the Council VOTED to approve the budget as amended and to transmit the budget to the House of Delegates on December 13, 1973 with the Council's recommendation that it be approved by the House. It was further VOTED to set the membership dues for 1974 at $75, and to recommend approval of that figure by the House of Delegates. In response to the communication received from the Executive Director, it was VOTED to offer the Director a renewed five-year agreement and to approve the Director's recommendation that provision be made for termination of the agreement upon six months written notice by either party to the other of desire to terminate.

PSRO

(a) James D. Kenney, New Haven, chairman of the Committee on PROs, Foundations and HMOs, joined the Council members for the purpose of presenting verbally a progress report on the current activities of the Committee and various changes and/or rumors of change in the policies and regulations emanating from the Office of Professional Standards Review and from the Congress. The Committee or subcommittees thereof have contacted or consulted with representatives of health care systems agencies and met with representatives of the Connecticut Hospital Association. Plans call for further meetings with representatives of the health insurance industry, Blue Cross and Blue Shield and perhaps other interested segments of the health care field. At the present time, the Committee is directing primary attention to the possible establishment of an "institute" which could serve as a coordinating and service organization for the four Connecticut PSROs which it appears likely will be approved for the state by HEW. It was VOTED to accept Dr. Kenney's verbal report with thanks and commendation.

(b) It was VOTED to accept for filing, and to refer to the Committee on PROs, etc. as information, a communication from the Committee on Continuing Medical Education which apprised the Council of the CME Committee's interest in "making itself available to counsel and/or cooperate with the Society's committee charged with the implementation of whatever PSRO structure is designated for Connecticut." As a preface to the foregoing statement, the Committee observed that continuing medical education will undoubtedly play an important role in PSRO operations.

Report — Subcommittee to Study and Revise the Bylaws

It was VOTED to accept for filing a report of the Subcommittee on the question of waiving or reducing CSMS membership dues for physicians becoming members in the last half of a fiscal year (less than six months of membership); also on the question of eliminating the requirement that a physician who has been dropped from membership for nonpayment of dues must pay dues for the year of delinquency in order to be eligible for reinstatement. In large part, the report and recommendations of the Subcommittee were based on the results of an opinion survey on these questions which had been responded to by six of the eight component County Medical Associations. It was further VOTED to approve the report and its two recommendations as follows:

(1) That Article XII — Dues, Section 1 — Prescription, be amended to provide that "physicians who become Active Members during the latter half of a fiscal year be assessed one-QUARTER (instead of one-half) of the annual dues for that fiscal year," and that this amendment be placed on the table at the semi-annual meeting of the House of Delegates on December 13, 1973 for consideration and action at the annual meeting in 1974.

(2) That the requirement be retained that dues for the year of delinquency (non-payment of dues) be paid in order for a physician to become eligible for reinstatement as a member in good standing.

Report — Ad Hoc Committee on VD Education and Control

It was VOTED to accept for filing a report of the Ad Hoc Committee which consisted of a series of recommendations concerning VD education and control activities that could be implemented and/or promoted by the Society and a single recommendation that the Ad Hoc Committee be discharged and replaced by a standing committee. It was further VOTED to adopt the report and approve the recommendations thereof. The Council will make a recommendation to the House of Delegates on 12/13/73 concerning discharge of the Ad Hoc Committee and formation of a standing committee.

Report — Committee on State Legislation

It was VOTED to accept for filing a report of the Committee concerning the "sick doctor" and it was further VOTED to approve a recommendation of the Committee that "the Council urge the Committee on Mental Health to move ahead as rapidly as possible with development of programs (for hospital medical staffs, county medical associations and CSMS) to deal with the sick doctor within the profession, and that consideration of amending the medical practice act for similar purpose be held in abeyance until such programs have been put into operation by medical units at all appropriate levels."

Report — Committee on National Legislation

It was VOTED to accept for filing a four-part report of the Committee dealing with several legislative matters now before the Congress.

(1) It was VOTED to approve a recommendation of the Committee that the Council support the position of the AMA concerning H.B. 7974 (HMO bill); i.e., support the House version but oppose the objectionable features of the Senate version (S 14), and that Staff be prepared to send appropriate telegrams to Connecticut's House members as soon as the Conference Committee's bill reaches the floor of the House and its provisions have been determined.

(2) It was VOTED to approve a recommendation of the Committee "that CSMS go on record as being in favor of the Bentsen Amendment (re PSROs) if it insures each state the right to have a statewide PSRO if the state desires one and is qualified to operate one," and that Staff be prepared on a moment's notice to send telegrams to Connecticut's Congressional delegation making them aware of CSMS support of the Bentsen Amendment.

Follow-up Report on Health Commissioner's Qualifications

The Council was apprised of the contents of the letter sent (at its direction) to the Governor requesting a statement of his assessment (as the appointive source) of the requirements of Section 19-2 of the General Statutes as they apply to the professional qualifications of the physician who has been named to be commissioner of health. The Council was further apprised that, as an alternative to a written reply, the Governor invited Dr. Cramer, President, and Dr. Grendon, Chairman of the Council, to meet with him in his chambers on 11/2/73. It was VOTED to accept for filing a written report on their meeting with the Governor, submitted by Drs. Cramer and Grendon, including a "fact sheet" attachment furnished by the Governor which represented his assessment of the qualifications of his appointee vs. the requirements of Section 19-2. After careful consideration of the report and the attachment, the Council expressed the opinion (without vote) that the "substantial uncertainty in both medical and non-medical circles" concerning the appointees qualifications had not been dispelled by the Governor's assessment thereof, and it was further VOTED to communicate to all members of the General Assembly the Council's recommendation that the Legislature conduct a full and in-depth hearing on the qualifications of the commissioner of health before confirming his appointment to the post, and that notice of this action of the Council be released to the Connecticut communications media. Finally, it was VOTED that drafts of the letter to the members of the General Assembly and the release to the media be prepared by Staff and submitted for prior approval to Drs. Grendon, Root and Brandon.

N.B.: The foregoing is a summary of the proceedings and actions of the Council on November 14, 1973. Detailed minutes of the meeting are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.

Eighteen student members were elected to the Society:

STUDENT MEMBERS

Andrew Joseph Dutka, 130 Blake St., New Haven, Conn.
Albert Einstein College of Medicine — Class of 1976
Pre-Med: Yale University
Parent: Joseph J. Dutka

Irving Estrin, 426 Ellsworth Ave., New Haven, Conn.
Albert Einstein College of Medicine — Class of 1976
Pre-Med: Wesleyan University
Parent: Nathan Estrin

Attilio Vincent Granata, 425 River Road, Hamden, Conn.
Yale School of Medicine — Class of 1977
Pre-Med: Yale College
Parent: Attilio C. Granata

Alvah Victor Hinckley, III, 481 Middle Rd., Farmington, Conn.
University of Conn. — Class of 1977
Pre-Med: Trinity College
Parent: Alvah Victor Hinckley, Jr.

John Joseph Howse, 14 Wyman Street, Waterbury, Conn.
Bowman Gray School of Medicine — Class of 1977
Pre-Med: University of Connecticut
Parent: Blanche A. Howse

Jeffrey Michael Koffler, 87 Bartina Lane, Stamford, Conn.
Jefferson Medical College — Class of 1977
Pre-Med: Carleton College & the University of Bridgeport
Parent: Arthur Koffler, M.D.

David John Kreis, Jr., 42 Whitney Lane, Orange, Conn.
Yale University School of Medicine — Class of 1977
Pre-Med: Harvard College
Parent: David John Kreis, M.D.

James Patrick Ongley, Fairfield, Conn.
University of Florida, College of Medicine — Class of 1977
Pre-Med: University of Florida
Parent: P. A. Ongley, M.D.

David Richard Paz, 350 Thompson St., Stratford, Conn.
Hahnemann Medical College — Class of 1977
Pre-Med: University of Bridgeport & University of Virginia
Parent: Jose D. Paz

Robert Barry Peyton, 15 Gray Oolsa Lane, Greenwich, Conn.
N.Y.U. School of Medicine — Class of 1977
Pre-Med: Duke University
Parent: Charles O. Peyton

Richard Chase Prokesch, 30 Admiral Dr., New London, Conn.
New York Medical College — Class of 1976
Pre-Med: Yale University
Parent: Clemens E. Prokesch, M.D.

Daniel Joseph Scopetta, 773 Farmington Ave., W. Hartford, Conn.
Univ. of Conn. School of Medicine — Class of 1977
Pre-Med: Harvard College
Parent: Andrew Scoppetta

Frank Louis Tortora, Jr., 621 Townsend Ave., New Haven, Conn.
Emory University — Class of 1977
Pre-Med: Yale College
Parent: Frank Tortora, M.D.

Peter Evan Turner, 55 Elizabeth St., Hartford, Conn.
University of Connecticut — Class of 1977
Pre-Med: The Cooper Union
Parent: Ralph Turner

John Douglas White, 467 N. Salem, Ridgefield, Conn.
Yale School of Medicine — Class of 1977
Pre-Med: Yale University
Parent: James F. White

Sharon Lee Woods, 3799 Main St., Stratford, Conn.
Yale University School of Medicine — Class of 1977
Pre-Med: Univ. of Pennsylvania
Parent: Thomas C. Woods

Mary Elizabeth Zatkowski, 171 Thompson Rd., Manchester, Conn.
University of Connecticut School of Medicine — Class of 1977
Pre-Med: The George Washington University
Parent: Stanley E. Zatkowski

• • • •

Minnesota's First Homeopath: William H. Leonard, M.D.

Stanley B. Weld, M.D.

The Town of Mansfield in Tolland County, Connecticut, produced a physician who became one of Minnesota's most colorful figures in the latter half of the 19th century. To William Huntington Leonard goes the credit for founding the organization of homeopathic physicians in that State. He was born on December 2, 1825. It is of interest to note that his father, a farmer, was the son of a well known physician in Ashford, Connecticut. This branch of the family was descended from James and Henry Leonard who emigrated to America and settled in Taunton, Massachusetts, where they erected the first forge in this country.

William Leonard was kept occupied helping on his father's farm. He is said to have secured his education in a private school, presumably nearby. After teaching school for six years he began the study of medicine with Dr. Orrin Witter of Chaplin as his preceptor. His formal medical education was obtained during the winter of 1850 and 1851 at the University of New York and in 1853 he was graduated from the Medical Institution of Yale College. This was an alipathic school and certainly cannot be credited with encouraging young Leonard in any of the principles of homeopathy. Following graduation from Medical school he practiced for ten years in Grangeville, Wyoming County, New York.

Dr. Leonard moved to Minneapolis in 1855, a sprawling frontier hamlet with muddy streets. Here he assisted Dr. A. F. Ames in founding the Union Medical Society of Minneapolis and St. Anthony that same year. Just what brought about his change of heart we do not know but after four years in that place he proclaimed himself a convert to homeopathy. However, he continued to hold his membership in the Union Medical Society.

In 1860 Dr. Leonard entered the retail drug business in partnership with a Thomas Gardiner. The War of the Rebellion found him serving as Assistant Surgeon, Fifth Minnesota Regiment, for four years. Here he was a messmate of Chaplain John Ireland, later Archbishop of Minnesota. The story is told of his bringing home Charlie, a great white charger which he had ridden all throughout the siege of Vicksburg. With him also came a Negro, probably the first such from the deep South, as the good people of East Minneapolis where he lived could scarcely understand either her dialect or her mannerisms. By 1867 Dr. Leonard had opened up his pharmacy under the name of W.H. Leonard & Company, Druggists. It may well be that as an avowed homeopath he found it advantageous and perhaps even necessary to have his own source of homeopathic drugs, not dispensed by the regular pharmacists. For about twenty years he conducted his office in his residence as was the common custom of that day.

To him goes the credit for being the prime mover in organizing the Minnesota State Homeopathic Institute in 1867. If he did not originate the idea, at least there is proof in the transactions of that Society that he was responsible for supervising the printing and mailing of the notices which called together the homeopathic physicians of Minnesota. He was appointed the health officer of Minneapolis in 1869 and served as such for three years. In 1873 he helped establish the Minnesota Academy of Natural Sciences to which he donated his own collection of bones and stone implements gathered from Indian mounds at Lake Minnetonka. In 1875 Governor Davis appointed Dr. Leonard to the Minnesota State Board of Health where he served for almost 25 years. When the first faculty of the Department of Medicine of the University of Minnesota was organized in 1883, Dr. Leonard became a member, in just what capacity we do not know. The founding meeting of the Hahnemann Medical Society of Hennepin County met on September 16, 1872 in Dr. Leonard's office at which time he was elected president. He served in this capacity again in 1887 and 1888 and during the latter period he was the recipient of a gold-headed cane from the homeopathic physicians of Minneapolis. He was the first health officer to introduce the recording of vital statistics in Minneapolis and also the first Commissioner of the State Insane Examining Board.

Dr. Leonard's son, William Edwin, graduated from Hahnemann Medical College and Hospital of Philadelphia in 1879 and then joined his father in the practice of homeopathy after an internship of

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DR. STANLEY B. WELD, M.D., F.A.C.S., F.A.C.O.G., Member of the Hartford Hospital, Medical and Surgical Staff, Hartford, Conn.

one year in New York City. Strange to say, the elder Dr. Leonard had no license to practice until October 15, 1883 when both he and his son received that official recognition. Dr. Leonard, the elder, was tendered a banquet by the homeopathic physicians of Minneapolis in 1903 at the completion of fifty years of practice. Mark Twain and Elbert Hubbard sent telegrams. One can only guess their contents but it is certain they lent flavor to the occasion and gave pleasure to the 75 year old physician. *Northwestern Lancet,* a medical publication of that day, paid fitting tribute to Dr. Leonard for his silent influence for good. Four years later he passed away on April 9, 1907 in the city of his adoption. He was very popular, a genial gentleman, conscientious as well as skillful, and although homeopathy has all but vanished today, one must recognize that its founder in Minnesota contributed a wealth of those characteristics held worthy of the follower of Hippocrates.

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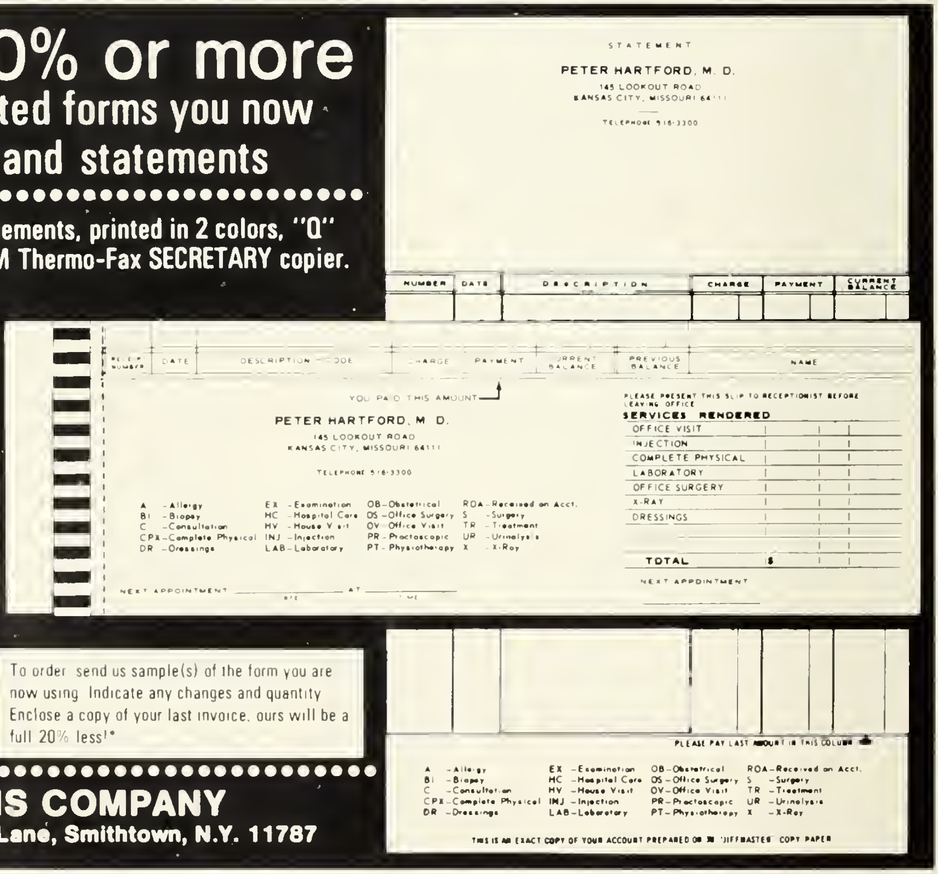

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Medicine in China Today

Sung J. Liao, M.D., D.P.H., F.A.C.P.

Few things are as fundamental in determining one's relationship with the world as the state of one's health. For a nation, its medical care program is part of the foundation of its social system. To consider intelligently medicine in China today, we must try to understand its social organization and the position in it which medicine occupies. We must endeavor to approach the study of China with an open mind rather than judging it in the light of our American way of life. The cultural gap and temperamental differences between our two countries are so huge that great patience and objectivity is needed when a member of either country tries to comprehend the other. To the Chinese our way of life is as unfamiliar and strange as their reverence of Chairman Mao is to us.

During the past twenty years, China has made great strides. It has managed to feed, clothe and shelter her 800,000,000 people. Prior to 1949, when China was still a semifeudal and semicolonial country, the masses suffered from extremely poor housing, living and health conditions. Epidemic diseases were rampant and malnutrition was common. In the past twenty years a massive health program to reduce and eradicate disease has been energetically carried out. A vast medical system has been established and many of the worst infectious diseases have been eliminated. Intensive mass educational drives have portrayed the concept of national health as being a part of, and at the same time, the basis for all other programs.

The Chinese have been working with great intensity (and success) to change old customs and habits and, on a very large scale, to remold their society. Not only in the field of medicine have they been successful. The country's manpower has been organized and set to work in all fields, including medicine. Every person works; there is no welfare system. In the olden days manual work was considered dishonorable. Now the dignity of labor, and particularly that of manual work, is very much emphasized. Due in part to the lack of machinery there is over-employment which is indeed much better and healthier than having able-bodied people idle and subsisting on welfare. When we look around the world, particularly at the socialist and "welfare states," the success of the Chinese social system is unique. Drug addiction and venereal diseases are nonexistent. There are no beggars in the streets. Malnutrition is nowhere to be found. The cost of living has been stabilized for over twenty years with no sign of inflation in sight. All these are the results of their intensive educational programs.

The Chinese have set up a medical network to bring knowledge and treatment free of charge, to even the remotest outreaches of the country. At its roots the medical lifeline begins with the now-greatly-acclaimed "barefoot doctors."

Clinics or infirmaries are found in factories, communes and city precincts. These are staffed with regular physicians and "barefoot doctors." From these clinics difficult cases are referred to county hospitals, and if need be, from there to provincial hospitals or teaching hospitals. From the latter two types of treatment centers mobile units are regularly sent out to the factory, commune clinics or urban neighborhoods assigned to them to assist and teach local physicians there. This is the framework of a health delivery system designed for a quarter of the world's population.

This restructuring of the health care network, needed and effective though it has proved to be, is not the most important change in the medical system. Of far more significance is the change that has taken place in the world outlook of the physicians. Whereas before, the medical services were focused on the wealthy minority in the cities, it now actively embraces the idea that the fundamental orientation of medicinal work is to serve the large masses of people. Applying to all facets of China's desire for change is the current slogan "to serve people." The poor, lower middle-class peasants are considered to be the backbone or "bluebloods" of the Chinese society, and are honored and aided accordingly.

Responding to the handicaps caused by such a large population, a large untamed country, and a desperate shortage of doctors, the Chinese developed the role of the "barefoot doctor." It is estimated that today there are over a million of these male and female medical aides, also called "Red Medical Guards." Though their training and functions are similar to those of medical corpsmen they are not the same. Their regular jobs are production work, not patient care. Whenever the need arises

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DR. SUNG J. LIAO, Clinical Associate Professor Rehabilitation Medicine, Institute of Rehabilitation Medicine, New York University Medical Center, New York, New York and Lecturer in Rehabilitation Medicine, Boston University Medical School, Boston, Mass.

they leave their jobs to attend to sick fellow workers. When they have given the treatments they return to the production line. They receive no extra remuneration for this service. Having been nominated by their fellow workers, the "Red Medical Guards" attend a teaching hospital where they receive three months training in the knowledge of preventive medicine and in the traditional and scientific approach to the care of common illnesses. Their training manual is quite comprehensive, giving appropriate descriptions of etiology, physiology, symptomotology, pathology, diagnosis and treatment of the common diseases and conditions. Upon the completion of their training they return to the original unit from which they came. They are taught to be aware of the limitations of their knowledge and readily refer difficult cases to the physicians in the clinics of their unit. Upon further nomination by their fellow workers, the better "barefoot doctors" may receive additional training till they are qualified as physicians.

Recently the Chinese have been experimenting with a new medical education system for the training of their regular physicians. This medical course comprises three years: one year in basic sciences, one year in clinical sciences, and one year in internship.

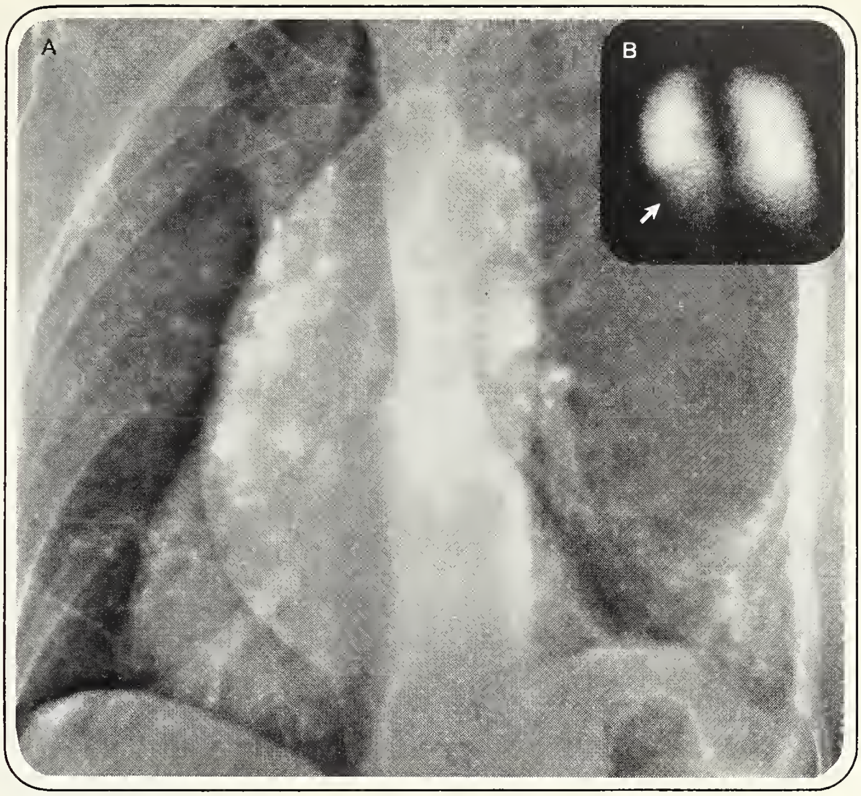
The medical subjects are similar to those taught in our medical schools. In addition, they have acupuncture and herbal medicine. Many of the medical subjects taught in the Chinese traditional medical schools are similar to those in Western medical schools. There were no real Chinese traditional medical schools to speak of before 1950. A hospital for Chinese traditional medicine is also relatively new. In the olden days, a patient stayed home and the traditional doctor came to the house. Admission to a hospital (almost entirely Western) was for seriously ill or for terminal cases. The Chinese traditional hospitals now have departments of internal medicine, pediatrics and gynecology just as in the Western Hospitals.

The students are selected by the medical schools from among the nominees of the high schools, factories, communes, etc. The number of vacancies for each province and each county is determined according to the medical needs of the geographical area. The length of training depends in part upon the nominee's prior educational level. If his education is not adequate it is the training institution's responsibility to give him additional instructions so that he can achieve his medical training. Those who excel in each class are recommended for advanced training. China seems to feel no need for licensing her physicians and other practitioners of healing arts. Each physician has his assignment and performs it, either returning to his home area or assigned to where there is the most need. For example, one of my cousins, a patho-physiologist, was assigned to the rural community of "Inner Mongolia" where there was a great need for physicians. Later the provincial health authorities thought he could serve better teaching other doctors, so he was reassigned to the provincial hospital. There is great flexibility of this sort in the system. For the country to be healthy is a matter of national honor and to that end the people are willing to devote their time and energy.

One of China's guiding principles is to "make the past serve the present and foreign things serve China." Realizing that they are a poor country and still far from able to offer adequate medical services for their numbers, the Chinese are eager to absorb into their medical program any treatment techniques that are practical and successful, regardless of their origins. In this respect their attitude toward medical advancement is more open-minded and reasonable than that of large segments of the medical profession of the Western World. We would do well to learn from it. This principle provides the motivation for modernizing traditional Chinese medicine and amalgamating the best of it with that of Western medicine. Acupuncture anesthesia for surgery is an obvious example of this. Scientifically trained physicians have all studied courses in traditional medicine and vice versa. Hospitals usually specialize in one form or the other, but not to the exclusion of either. Traditional hospitals are now regularly equipped with X-ray and laboratory facilities, and Western hospitals with herbal pharmacies and acupuncture departments. Chinese drug factories manufacture both the Western type of medicine such as our antibiotics and cortisones, and the extracts of herbal cures. Hospital pharmacies dispense both. These two forms of medicine work side by side. In treating an acute abdomen, for example in 1971, 70-77% of the cases were cured with antibiotics, herbal medicines and acupuncture instead of surgery.[1] This is of great importance because approximately eighty percent of the Chinese population live in rural areas where surgery is not routinely available.

Having to deal with the needs of so many people it is not surprising that besides preventive medicine the Chinese place a great emphasis on the treatment of common diseases rather than on purer research. Last August when I was visiting the Capital Hospital in Peking, I was told that at present the focus of concern at that hospital was with bronchitis. A student's medical education is more concerned with

ulmonary nfarction r pneumonia*?



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clinical and patient care than with basic research. A large proportion of the research that is done is concerned with practical matters such as limb reattachment.

In the late 1950's the Chinese discovered the use of acupuncture for anesthesia. For patients who are allergic to chemical anesthetics, the advantages of acupuncture are obvious. For all patients there are the advantages of less bleeding and a shortened convalescence. There is the added advantage that since the patient remains conscious, he is able, if needed, to co-operate with and respond to the surgeon's requests thus facilitating the speed and efficacy of the operation.

The main drawback to this type of anesthesia is that it does not cause the desired muscle relaxation needed for abdominal surgery. Used in China on over 400,000 patients as of 1971, acupuncture anesthesia is accepted as being ninety percent successful. It has been used for a wide variety of operations: brain surgery, thyroidectomy, tonsillectomy, tooth extraction, pneumonectomy, resection of ductus arteriosus, removal of ovarian cyst, Cesarian section, appendectomy, gastric resection, and reduction of fractures. Other uses include the cure of deaf-mutes, particularly those with sensori-neural hearing loss and the cure of paralysis due to poliomyelitis.[2] In conjunction with physical therapy, they implant catgut into acupuncture points of the paralyzed limb.

The common use of the traditional "small splints" in the treatment of fractures provides another example of the incorporation of traditional medicine into modern medicine. Small strips of willow are bound together with tape to form a splint. These splints, while immobilizing the fracture sufficiently, allow for some motion of the joints above and below. The contractions of the muscles around the break that this engenders are desirable. This automatically corrects the residual displacement, if there is any. In some cases this helps to avoid Volkmann's contractures. Functional recovery and the healing of the fracture occur simultaneously. A patient with a fractured femur may be discharged in fifty-two days as opposed to the eighty-five day hospitalization resulting from the conventional plaster cast treatment. This results in a wonderful savings in terms of hospital costs as well as manpower.[3]

In severe burn cases, where most of the body is covered with third degree burns, autografts are being used to surround the homografts, thereby greatly lessening their rejection, which is often a determinant of survival.

A final example of new Chinese treatments has been in the development of an artificial larynx. Modeled with human vocal cords, the two-phase movable voice producer regulates the volume and pitch of sounds. Its special tube insures the free movement of the mouth so that the vowel and consonant sounds can be clearly produced. It also has a breathing control apparatus which insures that the air passes into the lung through the nasal cavity. The larynx thus aids in restoring the nasal cavity functions of smell and of warming, humifying and filtering of inhaled air.[2]

The Chinese medical system has grown and adapted to the needs of its huge country with unusual speed and foresight. The statistics are impressive; take, for example, the increase in the number of hospital beds and doctors. In the period from 1950-1965 China has increased the number of its hospital beds from 900,000 to 7,200,000 (by a factor of eight), and its numbers of doctors from 18,000 to 315,000 (by a factor of 17.5). Venereal diseases, malaria, cholera, smallpox and kala-azar have been eradicated. Plague and schistosomiasis have been brought under control. The Chinese emphasis on preventive medicine, pride in health, the "barefoot doctor" and incorporating the best of traditional and Western medicine have been spectacularly successful in improving the health and health care in the country. All of these advances have been made possible only through the intensive propaganda and health education drives which are themselves but a part of the country's effort to remodel its society in order to cope with twentieth-century problems.

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(3) Hung Yi: Revolution in Fracture Treatment, in Scaling Peaks in Medical Science. Peking Languages Press. 1972.

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OBITUARY

FREDERICK J. KARDYS, M.D.
1915-1973

Frederick J. Kardys, physician and thoracic surgeon at St. Francis Hospital, Hartford, Connecticut, died October 26, 1973 at the hospital, after a short illness.

Born in Hartford, Connecticut, Dr. Kardys attended area schools before taking pre-medical training at Virginia Polytechnic Institute. He was also very active in baseball and basketball, and was quite renowned as an amateur athlete.

He was graduated from George Washington University in 1942 with the degree of Doctor of Medicine, and also with the degree of the A.F.A., King Obstetrical Society of the George Washington University as an Active Fellow.

He was the house physician and surgeon in 1943 at St. Francis Hospital, where he interned.

Before beginning practice as a general and thoracic surgeon at St. Francis Hospital, Dr. Kardys spent two years as a resident general surgeon at New York Polyclinic Hospital, a year as resident for cancer and allied diseases at Memorial Hospital, New York City, affiliated with Cornell University Medical College, a year in post-graduate work in general surgery at New York Medical College, and two years' residence in thoracic surgery at Metropolitan Hospital of New York City.

He was the protege and associate of Dr. George Pack, renowned thoracic surgeon at Sloan-Kettering Hospital in New York City.

Dr. Kardys was a member of the Connecticut State Medical Society, Hartford County Medical Association and the American Medical Association; also a member and fellow of the American Society of Abdominal Surgeons. He was a captain in the U.S. Army Reserve.

Dr. Kardys, whom I have been privileged to know, was a great surgeon, a great humanitarian, a man completely devoted to the art of healing, and truly one of the humblest men I have ever known.

He was the brother of the late Dr. John Kardys, also of Hartford.

He is survived by his wife, Helen E. Kardys.

Francis J. Figueroa, M.D.

In Memoriam

Harris, Jesse S., Yale Medical School, 1922. Dr. Harris was a practicing allergist in the New Haven area since 1924. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Harris died September 16, 1973, at the age of 77.

Musselman, Luther K., Johns Hopkins University, 1919. Dr. Musselman was a practicing gynegologist in the New Haven area since 1922, until his retirement in 1968. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Musselman died October 27, 1973, at the age of 78.

Osborn, James W., Case Western Reserve University, 1939. Dr. Osborn was a practicing internist in the Litchfield area 1945 to 1951, and the medical director for the Standard Oil Co. of Ohio, 1951 to 1969. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Osborn died November 4, 1973, at the age of 64.

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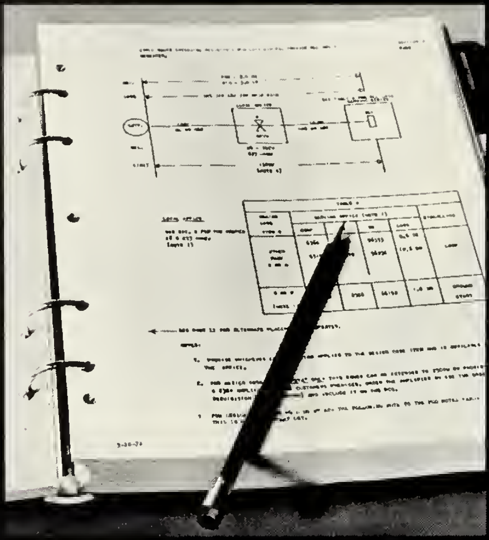

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Chicago Conference

I was one of the more than 250 national and state officers of the Woman's Auxiliary to the AMA who attended the fall leadership conference in Chicago. National officers presiding were Mrs. Willard Scrivner, president, and Mrs. Howard Liljestrand, president-elect. And, of course, I was delighted to see Connecticut's own Mrs. Norman Gardner who is eastern regional vice-president.

The conference featured speakers and programs to aid Auxiliary leaders in planning projects and in training them in leadership and communication techniques. Keynote speaker was Bergen Evans, Ph.D., professor of English, Northwestern University. A noted lecturer and author, Dr. Evans spoke on "Understanding Misunderstanding." A highlight was the seminar conducted by Mortimer T. Enright, director of the AMA Speakers and Leadership Program, and T. Stephen May, Ph.D., associate professor of Speech, Northwestern University. The seminar included audience participation in "footwork drills" on leadership situations and interview techniques. We were all frightened to be interviewed by these competent and illustrious men but, somehow, we managed to survive!

Other outstanding speakers included Russell B. Roth, M.D., president of the AMA, who brought insight into the crises in the health care system, and Cynthia Wedel, associate director, Center for a Voluntary Society, who spoke on volunteerism. Mrs. Wedel pointed out that voluntary action, which exists nowhere as in the United States, has formed the American way of life. She reminded us that behind the Constitution was 150 years of voluntary action. "If all M.D.'s wives joined together, there would be literally nothing that we couldn't accomplish," she said. She believes our Auxiliary should emphasize a variety of activities to interest many people, and we should never fall into a trap of using the seven words of a dying organization, "We never did it that way before."

Our Connecticut Auxiliary is innovative. During my presidency we have started a project of collecting and airlifting baby supplies to New Mexico's Navajo Indian Bisti Clinic. We have held meetings around the state in health institutions to acquaint our members with these facilities and to acquaint their management with doctors' wives. Our annual meeting was held at the University of Connecticut's School of Medicine in Farmington. Dean Robert U. Massey's reception was so cordial that we have asked him to help us with the April 27 Connecticut Quality of Life program in which we are participating. We have raised money by sponsoring foreign travel for members and families. This has had a side benefit of bringing travel enthusiasts into our working organization.

One afternoon at the conference was devoted to mini-workshops which introduced new ideas and programs being planned in all 50 states. It was a short, intensive course because we were to receive more instruction and information at the eastern regional workshop to be held in Boston the following week.

Our Auxiliary is a non-profit, public service, volunteer organization comprised of more than 89,000 members who assist their physician husbands in protecting public health and improving the quality of life for all Americans. It is a privilege to be a member and to attend such a conference. It is exhilarating to be caught up in the enthusiasm of so many women. I am proud to be a doctor's wife and part of the AMA Auxiliary.

Roberta B. Czarsty,
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As for the future of medical education, accurate prediction is impossible because of the influences that will be brought to bear by a variety of events that have yet to come and decisions that have yet to be made. The evolution of the nation's system of medical care will be a predominant factor. When national health insurance comes, as it will, will it preserve the fee-for-service system or will it encourage prepayment for all care? Will care be provided by large groups of medical professionals, and will hospitals continue to dominate the system?

The method of financing medical education in the future will also be a factor, particularly if direct support of medical schools by tax dollars on a per capita basis is expanded. For example, a recent act of Congress authorizing capitation allowances to medical schools required expansion of enrollment as a condition of support.

Public attitudes will be important. If medical services continue to be in short supply at the same time that large numbers of qualified applicants cannot gain admission to medical school, the pressure to increase the size and number of the medical schools will be substantial. Moreover, both Congress and the executive branch of the Federal Government are likely in such a case to take the position that medical education is too expensive for what it produces.

The attitudes of students may also be a factor in the future will also be a factor, particularly if direct support of medical schools by tax dollars on a per capita basis is expanded. For example, a recent act vance" in the curriculum at the expense of basic medical sciences?

Having entered these disclaimers, I shall venture a few predictions.

First, the total educational experience will be shortened so that much of what is now taught in the first year and a half of medical school will be presented at the undergraduate level. In addition there will be a fusing of clinical training at the medical-student level with internship and residency, so that the total amount of time spent in giving the student clinical experience will be shortened.

Second, the character of medical schools will be altered. The basic medical sciences will become an integral part of the university, whereas clinical training will become even more detached from the university, although it will remain under the university umbrella.

Third, physician assistants will not replace physicians as providers of primary care except in remote rural areas, and even there the assistants will have circumscribed tasks and ready access to direction from physicians.

Fourth, the number of medical students receiving the M.D. degree will rise, perhaps even to the point of oversupply if care is better organized. This development would cut down or eliminate the importation of foreign medical graduates.

Fifth, the number and quality of residency programs will be brought under tighter regulation, and training opportunities for primary-care physicians will gain predominance over programs for specialists.

Finally, the number of women and members of minority groups entering medicine will increase, thereby aiding in the solution of the problem of equitably distributing medical services.

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BOOK REVIEWS

PHYSIOLOGY, EMOTION, AND PSYCHOSOMATIC ILLNESS. Ed. Ciba Foundation Symposium 8 (new series) Excerpta Medica, 1972. Amsterdam.

Reviewed by Robert Cancro, M.D.

The symposium which produced this volume was held in April 1972 and concerned itself with the topics of physiology, emotion, and psychosomatic illness. Twenty-six outstanding scientists were brought together. It may well have been a useful exchange but the proceedings do not lend themselves to a book. One of the participants said to this reviewer privately that there were a lot of smart people present talking about their narrow interests and not being understood by the others. Reading the papers that make up the volume supports his analysis.

If the potential reader is looking for a cohesive book, he will be disappointed. On the other hand, if he is looking for a group of research papers many of which are quite interesting and in general related to the topics of the symposium, he will find his efforts well rewarded. The general practitioner who treats obesity will be interested in reading the paper by Grinker and Hirsch. They make a distinction between juvenile- and adult-onset obesity. The latter group does not show psychological disturbances with weight loss while the former group does. These two types of patients are physiologically different in terms of the number of adipocytes found in their bodies. This paper is one of the few that is relevant to clinical practice.

There are a number of very interesting but highly specialized articles which would not be appropriate for the general practitioner or other clinicians. A valid criticism of this volume is that it is not sufficiently oriented to practical applications. It tended to be a meeting of research-oriented individuals who were directing their comments to very specialized and discrete audiences. This is at once the strength and weakness of the volume. The articles are of a research nature and only of interest to a small number of people. In their areas of hyperspecialization they are uniformly well done. Some of the discussion and interaction that followed the papers is also printed and is very helpful to the researcher. For the clinician and busy practitioner there is very little to entice his interest.

EXPERIMENTATION WITH HUMAN BEINGS. The Authority of the Investigator, Subject, Professions and State in the Human Experimentation Process. By Jay Katz, Yale University with the assistance of Alexander Morgan Capron and Eleanor Swift Glass, Published by Russell Sage Foundation, 230 Park Avenue, New York, New York 1972. 1,159 pp. $20.00.

Reviewed by Richard B. Elgosin, M.D.

This is a great book! It should be in every library: medical, legal, university, community and personal libraries. Such an enthusiastic recommendation must be based on factual reasoning. This is a big book of more than 1150 pages. It has been the result of seven years of work and the thoughts and inter-action of many people. The subject of "Experimentation with Human Beings" is one that has an impact on the day to day living of people in this modern rapidly changing scientific world. A definitive source book was needed on the subject of human experimentation. This book fills it close to perfection.

There are four main Sections. Part I is "An Introduction to the Human Experimentation Process:" Part II is "The Authority of the Investigator as Guardian of Science, Subject and Society:" Part III is "The Authority of the Subject as Guardian of His Own Fate;" Part IV is "The Authority of Professional and Public Institutions."

Do not be misled by the formality of the headings. Each part has several chapters and an analytical case method presentation is used to demonstrate from true to life experiences the problems raised, and the many questions which require answers from a medical, legal, ethical, moral, scientific or religious viewpoint. Many answers are presented but no attempt is made to try to provide "right" answers. Rather, the book tries — and succeeds — in raising many hidden questions and answers to the conscious level so that there may be a more open and free discussion of this vast field of Human Experimentation.

Human Experimentation to most people brings up the vision of the Nazis and the Nuremberg exposure of the atrocities committed during and before World War II. To others, Human Experimentation means the heart and other organ transplants that have been done over the past few years. It would be a mistake to think that these narrow visions of Human Experimentation even begin to cover the vast field of the subject matter of this book. For in truth, Experimentation with Human Beings is a subject that involves each and every one of us in our daily living. It is not only medicine that is involved as in research that involves the injection of live cancer cells into so-called "volunteers" who have given "informed consent;" it is not only research done by the legal profession with the best of intentions of improving the legal system whereby electronic 'bugging' of juries was done; it is research done by the social scientist as reported in the book concerning the subject of "Impersonal Sex in Public Places." It is society and industry agreeing on certain standards in industry for practical working conditions, knowing that human lives will be lost or harmed under the circumstances. It is the automobile manufacturing industry making changes in the automobile, thereby experimenting with human lives and capabilities. It is birth control pills. It is abortions. It is the care of the chronically ill and the dying patient. Where does the State stand in terms of its authority and responsibility regarding the use of new drugs, new vaccines, and new electronic devices for use in human beings?

It is impossible to review this great book in detail. Perhaps one way to prove to yourself that this book has something that is interesting and important to say to you is to pick it up and read a few pages from any section of the book. A few pages will convince any thinking educated person that there is much more that he should know about Experimentation with Human Beings. . . . And it is so well presented and exciting to read that one will return again and again to this book with pleasure and profit.

CORRELATIVE NEUROANATOMY &
FUNCTIONAL NEUROLOGY,
15th EDITION.

Joseph G. Chused, Lange Medical Publications,
Los Altos, California, 1973, pp 429.

Reviewed by Melville Roberts, M.D.

With the appearance of the 15th edition of this classic neurology and neuroanatomy reference we see the latest in a long line of editions of one of the most useful references in the field of clinical neuroscience. The author has fortunately not succumbed to the temptation to add more material for the sake of "completeness" — an error that has caused the ruination of many a good book. Indeed, the new edition has 24 fewer pages than the preceding edition. There has been no loss of subject matter, however, slight changes in layout accounting for the fewer number of pages. The 15th edition also has been published in Spanish, Italian, Japanese and Portuguese reflecting the world-wide popularity of this work.

The author has obviously chosen the material covered in the volume with great care. This is probably the greatest virtue of the work. It would be easy to produce an edition twice the size and only half as useful. Trivia has been carefully avoided while presenting all major aspects of the structure and function of the nervous system from the clinician's point of view.

All of the illustrations are black and white and many are line drawings. Some have been borrowed from the best appearing in other works. They are clear, concise and aptly chosen.

The chapter on the brain is excellent. It not only succinctly presents the clinically significant aspects of adult brain anatomy but also briefly reviews the embryology of the brain. Cerebral blood flow is also discussed. The chapter on the anatomy and physiology of the spinal cord, including a discussion of synaptic transmission, is equally as well done.

The chapter on the cranial nerves is particularly good. It clearly presents the anatomy, functions and methods of testing the cranial nerves and then discusses the various clinical syndromes associated with cranial nerve lesions. The illustrations in this section are especially helpful.

There are also excellent chapters on the spinal nerves, peripheral nerves, autonomic nervous system, muscle, sensation, reflexes, electroencephalography and electromyography. The chapters discussing tumors of the central nervous system, psychiatric disorders and radiologic examination are very brief considering the body of knowledge in these fields. One cannot fault the author, however, for greater detail would be inappropriate for this type of book.

In the preface the author modestly states that the volume is intended for the beginner in clinical neurology. In spite of this he has produced what has become a "standard" reference in the field, a work of excellence that is as useful to the neophyte as to the master. It should be in the library of all students and physicians who deal with the nervous system.

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Presidential Address Delivered to the Connecticut Society of American Board Surgeons

William A. Whalen, M.D.

September Thirteenth, Nineteen Seventy-Two marked the beginning of the 25th year in the history of the Connecticut Society of American Board Surgeons. Our Society is a most unique organization. Perhaps it is the only one of its kind in the country. The common alliance which unites us is the fact that academic excellence has been demonstrated before the scrutiny of a group of our peers. You might consider this a super academic peer-review.

Indeed, at the inception of the American Board of Surgery in 1935, it was anticipated that by this interrogative thrust a series of events would be produced which would eventually lead to improved surgical care in the United States. Progress has been made. Surgeons have been mass produced and mass examined, but yet shortcomings still remain. We are told that three-eighths of the surgery in the United States (not including those in training) is performed by individuals not accredited by a board or national college. Problems of mal-distribution exist, and a disparity in specialty quotas remains. Today, the patient automatically assumes that surgeons are technically competent, trustworthy, and dedicated. The intelligent, technically able surgeon is the patent of our age. We have been examined academically on numerous occasions in the past, but at no time in our careers have we ever been subjected to a peer review in reference to our human values as they apply to our professional responsibilities.

Consider for a moment the attitudes and expectations of the voices of the past as they have been applied to surgeons:

Hippocrates (460?-377? B.C.) stated that "the dignity of a physician requires that he should look healthy and as plump as nature intended him to be; for the common crowd consider those that are not of this excellent bodily condition to be unable to take care of others. That he must be clean in person, well dressed, and annointed with sweet smelling unguents that are not in any way suspicious."[1]

Celsus, in 25 B.C., felt that a surgeon must be "youthful, of steady hand which never trembled, ready to use left as well as right, with vision sharp and clear and spirit undaunted."[2]

DeMondeville (1216-1320) "A good surgeon is moderately bold. He operates with foresight and wisdom. He does not begin dangerous operations until he has provided himself with everything necessary for lessening danger. He has long, non-tremulous, slender fingers. He must be highly moral. He should care for the poor for God's sake." And finally, "he should be certain that he makes himself well paid by the rich."[3]

DeChaliac (1300-1370) "A good surgeon must be learned, expert, ingenious and adaptable . . . Let the surgeon be bold in all sure things and fearful in dangerous things . . . He ought to be gracious to the sick, considerate to his associates, and cautious in his prognastications. Let him be modest, dignified, gentle, pitiful, and merciful. Let his reward be according to his work, to the means of the patient, to the quality of the issue, and to his own dignity."[4]

Paracelsus (1493-1541) listed these qualifications of a good surgeon: "Regarding his innate temper; he must have a clear conscience. He must desire to learn and to gather experience; he must have a gentle heart, and a cheerful spirit. He must demonstrate a moral manner in life and a sobriety in all things. There must be a greater interest in being useful to his patients rather than to himself. He should not be a run-away monk. He should not practice self-abuse. He must not have a red beard. He must not act without judgement. He must not accept belief without understanding. He must scorn the workings of chance. He must not boast of anything without experience. He must never boast or praise himself. He must despise no one."[5]

John Halle (1529-1568) "a surgeon must have the heart of a lion, his eyes like the eyes of a hawk, his hands like the hands of a woman."[6]

John Pearson (1758-1828) "He who reduces the province of a surgeon to the performance of an operation, and consequently directs his attention in a transient and careless manner to the less splendid parts of his profession, may learn the art of muti-

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DR. WILLIAM WHALEN, attending surgeon, Windham Memorial Hospital, Windham, Conn.

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lating his fellow creatures, but will never deserve to be treated as a good surgeon."[7]

Rudolph Matas (1860-1957) "A surgeon needs broad vision, the cultivated imagination, the catholicity of artistic taste, and human sentiment that give to his manual accomplishments and attributes and qualities that glorify the hand in the higher arts. To do all this and to be all this, the master surgeon must be a man of mind, a man of thought, a man who knows his province, the human body as a whole, and not one of its parts."[8]

John Bradshaw (1861-1943) "A surgeon should be a gentleman."[9]

On a more humorous note, an anonymous surgeon wrote in the 1900's that the successful doctor was said to need three things — a top hat to give him authority, a paunch to give him dignity and piles to give him an anxious expression.[10]

Finally, Robert Greenough (1871-1935) "Patients entrust themselves to surgeons upon faith rather than upon actual experience in his abilities. Thus conscience becomes one of the most important elements in the character of the surgeon."[11]

These readings of the past are nothing new to any of us. We need not refer to the past to derive the definition of the good or complete surgeon. The same ground rules apply now as they did in ancient days. We are all individually very much aware of the honorable, gentlemen surgeons with whom we have dealt in our practices. One of the group of seven illustrious founders of this Society, our first president in 1948, was, indeed, a gentleman surgeon. This was Dr. Edward J. Ottenheimer. I had the opportunity to practice with Dr. Ottenheimer during the last two years of his career. He writes in his unpublished memoirs, "What does it take to be a good surgeon? Integrity, personality, technical ability, and a sympathetic insight into the complexities of human behavior."[12] Men such as Eddie Ottenheimer, and others whom you can name, whom we have totally respected during the course of our abbreviated surgical careers have demonstrated integrity, dependability, and a conscience for human values. These qualities have been of paramount importance in the past and still remain foremost in that personal interrelationship between doctor and patient today.

Integrity implies that one is first honest with oneself so that he can then be honest with his fellow men. Integrity implies truthfulness. "Next to knowing the truth is to know the direction in which it lies." It lies exclusively within the individual. Integrity should be an irrevocable constant which is absolutely mandatory in the practising surgeon.

Dependability includes accountability and availability. As surgeons, we must give an accounting to ourselves and to our patients of our total preparedness to plan and carry out a surgical procedure. Most important of all, we must account to ourselves as to the authenticity of our actions. Availability today is a most important constituent of medical care. People are more concerned about obtaining a surgeon today than they are about the expectations of quality care and its presumptive cost. Availability in times of fear and suffering ranks higher as a popular asset than does the ability to prevent the disease.[13]

The surgeon must be a humanitarian. Rare indeed is a doctor-patient relationship in which some emotional and subjective values fail to appear. All doctors and patients are people, and people are human beings.[14]

The practice of surgery is an art as well as a science. Peabody stated that one of the essential qualities of the clinical surgeon is an interest in humanity. "The secret of the care of the patient is caring for the patient."[15]

A true physician has been described as a scientific scholar of human biology who practices his profession as a perceptive humanist.[16] Fred Coller describes humanism as follows: "it implies an understanding of the mental state of the patient and a sympathy for him as a purposeful being. It is this that distinguishes the physician from the barber leach."[17] When a patient is ill and believes himself to be ill and seeks advice of a physician whom he trusts, this is a consultation and all else in the practice of medicine derives from it.[18] Wise counsel was recently given to us by a retiring president of the A.M.A. He stated that the ultimate argument for the benefits of progress of medicine is not made verbally. It is made by the actions of a physician when a patient presents himself. If there is a failure at this point, then all the arguments fostered by medical organizations, civic and political, are otherwise nullified.

Changes in the delivery of medical care both clinically, economically, and politically are on the horizon. Present day dialogue involves the questions as to whether or not re-licensure or board recertification will be necessary to improve surgical care. We may or may not be reassessed in the future on our academic ability. In the future, we will never be formally evaluated or reevaluated as to our character and its relationship to our surgical practice. This responsibility past, present, and future, has rested and will remain with us as individuals.

A static society will never permanently exist. Man has always lived under conditions of uncertainty and change where many of the older beliefs and ways of doing things were considered inadequate. Consequently, we must acquire and maintain an undivided self and a unity of purpose. Ideas, ideals, and beliefs give life its unity and meaning. They are the foundation of action and have wielded "decisive power in human history." Our entire existence, Gentlemen, evolves around that rare moment when one applies his ideas, ideals, and beliefs to the best of his ability in rendering care to an individual patient. This is a sacred experience and a privilege which must not be betrayed. The world changes, but the attitude of the surgeon toward the individual patient must be changeless.

One of the purposes of the Connecticut Society of American Board Surgeons, as stated in our constitution, is to exercise a guiding influence on the development of surgery for the benefit of the people of Connecticut. We represent a substantial segment of leadership in the State of Connecticut. The shape and direction of our actions will influence the institution and preservation of high standards of medical and surgical practice in the state. We must "assay our assets," recognize our latent strength, and use our potential to the best of our ability.

What I have stated philosophically here this afternoon was not meant to be a sermon. Sam Johnson once said "it is not sufficiently considered that men be more often reminded than informed."[19] We must remind ourselves that nothing is worse for a man or a people than to lose aim or a sense of direction. Progress comes through improving or in outdoing what has been done before.[20] Our perennial goal should be a steadfast loyalty to the individual patient . . . A loyalty based on integrity, dependability, and a conscience for human values. I am confident that if our business and political counterparts professed the same doctrine, the impending problems of medical care would be more easily solved on a cooperative basis.

In the midst of all of this very serious discussion, we must maintain our sense of humor. Therefore, in closing, I would like to refer to some excellent advice which Samuel B. Harbison, Professor of Surgery at the University of Pittsburgh, offered to his freshman medical school class in 1963. I quote Dr. Harbison: "I would like to tell you in six easy admonitions how you achieve equanimity and thereby stay young: (1) Avoid fried meats which angry up the blood. (2) If your stomach disputes you lie down and pacify it with cool thoughts. (3) Keep the juices flowing by jangling around gently as you move. (4) Go very lightly on the vices, such as carrying on in society. The social ramble ain't restful. (5) Avoid running at all times. (6) Don't look back. Something might be gaining on you." I suppose you would like to know the name of the original author of this deathless advice — it was that immortal baseball player, Satchel Paige.[21] Good luck, Gentlemen, and thank you for the privilege of the Chair.

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Role of Balloon Counterpulsation in the "Acute Coronary" Patient

Jacob Rosensweig, M.D., Ph.D., F.R.C.S. (C)
Shekhar Chatterjee, M.D., M.Sc.
Stephen Czarnecki, M.D. and
Stanley Bernstein, M.D.

ABSTRACT — Thirteen patients with acute myocardial infarction were treated by intra-aortic balloon counterpulsation. The indications were cardiogenic shock refractory to medical therapy or persistent acute myocardial ischemia. All patients revealed marked circulatory augmentation while assisted and angina quickly abated. Four patients in Group I (44%) and three in Group II (75%) recovered uneventfully. There were no significant complications. The encouraging results suggest that the indications for balloon counterpulsation should be extended to patients experiencing crescendo angina (pre-infarction syndrome).

Increased utilization of assisted circulation has afforded clearer understanding of its role in management of the "acute coronary" patient. Our results of treatment by arterial-arterial counterpulsation have previously been reported.[5] The present paper considers recent experience with intra-aortic balloon counterpulsation in 13 acute myocardial infarction patients.

Clinical Material

The indications for assisted circulation were grouped into two categories: (1) Cardiogenic shock refractory to medical therapy, and (2) Persistent acute myocardial ischemia. (Table I)

Group I — Cardiogenic Shock

There were nine patients in cardiogenic shock (Table II), six male and three females, ranging in age from 42 to 75 years (average 61 years). All, except one, suffered one to three previous myocardial infarctions. The acute myocardial infarction was diagnosed by typical electrocardiographic findings and elevated serum enzyme levels. Shock developed within an average of 23 hours (1 to 72 hours) of infarction and the duration of shock prior to institution of circulatory support averaged 16 hours (3 to 30 hours). The patients were either obtunded or comatose, severely oliguric or anuric and demonstrated either tachyarrhythmia or multiple ventricular extrasystoles. Pulmonary con-

TABLE I

INTRA AORTIC BALLOON COUNTERPULSATION
FOR
ACUTE MYOCARDIAL INFARCTION

INDICATIONS

Cardiogenic Shock REFRACTORY TO MEDICAL THERAPY
- **Clinical Signs**
- **Cardiac Index (<2 L./m²/min.)**
- **Hypotension (<90 mm Hg)**
- **Oliguria, Anuria (<10c.c./30min.)**

Persistent Acute Myocardial Ischemia
- **Pain**
- **Electrocardiogram**
- **Extension of Infarct**
- **Ventricular Arrhythmia**
- **L.V. Failure** (P W P >20 mm Hg)

TABLE II

COUNTERPULSATION FOR CARDIOGENIC SHOCK

CLINICAL SUMMARY
(9 PATIENTS)

AGE			42-75 (mean 61)
SEX		M	6
		F	3
PREVIOUS MYOCARDIAL INFARCTION		O	1
		+	4
		++	2
		+++	2
TIME INTERVAL BETWEEN INFARCTION AND SHOCK (HRS.)			1-72 (mean 23)
DURATION IN SHOCK (HRS.)			3-30 (mean 16)
CLINICAL STATUS	Rhythm	TACHYARRHYTHMIA	7
		MULTIPLE P V C	2
	Cerebral	OBTUNDED	7
		COMATOSE	2
	Renal	OLIGURIC	5
		ANURIC	4
	Pulmonary	CONGESTION/EDEMA	9
C V P (cm H_2O)			16-24 (mean 20)
SPECIFIC THERAPY	Vasopressors		8
	Diuretics		4
	Digitalis		6
	Antiarrhythmic Drugs		4

DR. JACOB ROSENSWEIG, Director, Department of Surgery, DR. SHEKHAR CHATTERJEE, Attending Surgeon, DR. STEPHEN CZARNECKI, Chief of Cardiology and DR. STANLEY BERNSTEIN, Chief of Medicine; all of the Mount Sinai Hospital, Hartford, Conn.

gestion and elevated central venous pressure (mean 20 cm. of water) was apparent in every case prior to commencing assisted circulation. Antecedent therapy included vasopressors, diuretics, digitalis and antiarrhythmic drugs.

Group II — Persistent Myocardial Ischemia

There were four men in this group, 36, 41, 46 and 68 years of age (Table III). Two had previously suffered a myocardial infarction. In three instances, left heart failure developed following extension of the acute infarct. Although not in frank shock, all complained of persistent angina, were mentally obtunded, oliguric and showed ventricular irritability. Treatment had been restricted to digitalis, diuretics and/or general supportive measures. The mean central venous pressure prior to counterpulsation was 19 cm. of water.

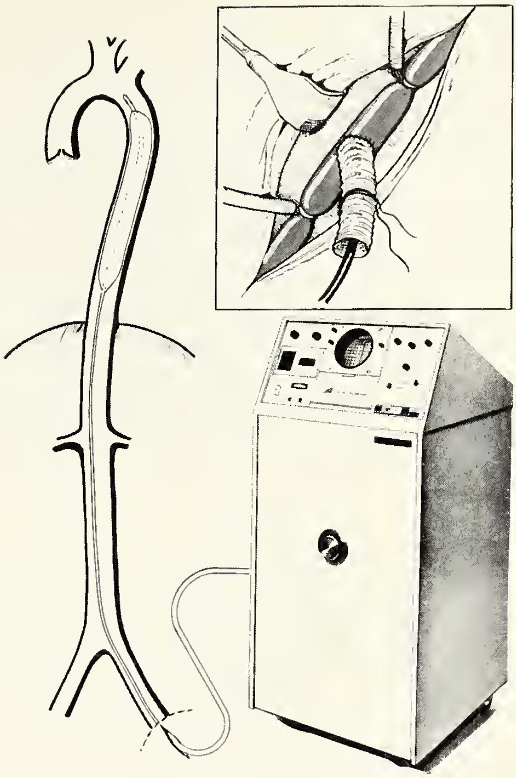

Figure 1 Composite sketch illustrating the technique of femoral artery cannulation, proper positioning of the balloon catheter in the descending thoracic aorta and the Avco pump console.

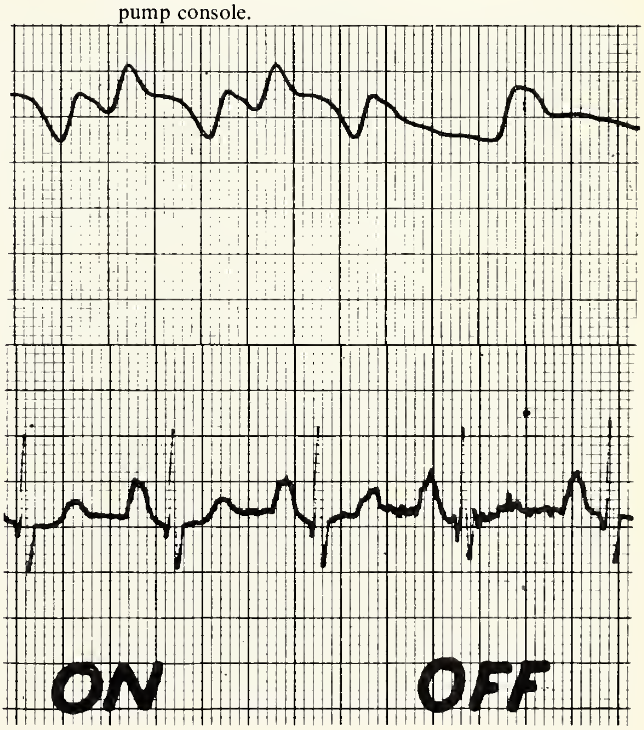

Figure 2 Photograph indicating optimal phasing of balloon inflation and deflation. Note the characteristic alteration of aortic pressure wave contour during counterpulsation.

TABLE III

COUNTERPULSATION FOR PERSISTENT ACUTE MYOCARDIAL ISCHEMIA

CLINICAL SUMMARY

(4 PATIENTS)

AGE			36–68 (mean 48)
SEX		M	4
		F	0
PREVIOUS MYOCARDIAL INFARCTION		O	2
		+	2
RECENT M I	Initial	ANTEROSEPTAL	2
		ANTERIOR	2
	Extension	LATERAL WALL	1
		INFERIOR WALL	2
PERSISTENT ANGINA			4
TIME INTERVAL ONSET OF SYMPTOMS TO ASSIST	< 2 days		3
	> 2 days		1
CLINICAL STATUS	Rhythm	TACHYARRHYTHMIA	1
		MULTIPLE PVC	4
		V. FIBRILLATION	1
	Cerebral	OBTUNDED	4
		COMATOSE	0
	Renal	OLIGURIC	4
		ANURIC	0
	Pulmonary	CONGESTION/EDEMA	4
C V P (cm H_2O)			18–20 (mean 19)
SPECIFIC THERAPY	Vasopressors		0
	Diuretics		3
	Digitalis		3
	Antiarrhythmic Drugs		1

Technique

The Avco triple segment intra-aortic balloon catheter and pump system was used. Volume displacement of the balloon was 30 cc. A catheter was inserted under local anesthesia through a femoral arteriotomy (Figure 1). The distance from the arteriotomy to the sternal notch was measured and the catheter advanced the appropriate length. Generally, this resulted in proper placement of the tip of the catheter just distal to the origin of the left subclavian artery. The position was confirmed by roentgenogram of the chest and counterpulsation instituted. A dacron woven graft was then sutured to the arteriotomy and tied about the catheter. The catheter was allowed to exit at the lower end of the wound. The aortic pressure was monitored by a teflon catheter inserted through an arteriotomy in the right ulnar or radial artery. Once counterpulsation was instituted, vasopressor was discontinued. Accurate synchronization was always readily achieved. Optimal hemodynamic effects were evident when the balloon was inflated at aortic valve closure and deflated so as to produce maximal lowering of enddiastolic aortic pressure (Figure 2). Systolic pressure was decreased 13% (6%-19%) in Group I and 13% (4%-28%) in Group II. The diastolic pressure was augmented 39% (25%-64%) in Group I and 26% (13%-40%) in Group II.

Results

In Group I (Table IV), the duration of counterpulsation ranged from 20 to 201 hours (mean 63 hours). All patients demonstrated improved hemodynamics while on assist and became mentally alert. Heart rate slowed, pulmonary congestion diminished, color improved, extremities warmed and urine output increased.

TABLE IV

COUNTERPULSATION FOR CARDIOGENIC SHOCK

RESULTS

(9 PATIENTS)

Duration of Counterpulsation (HRS.)		20-201 (MEAN 63)
Immediate result	IMPROVED	9
	NO IMPROVEMENT	0
Off assist		8
Died	During assist	1
	Post assist	4
Discharged		4

One patient suffered a fatal arrhythmia while on circulatory support and eight patients were taken off assistance after varying periods. In two instances, assisted circulation was electively terminated and the patients died shortly thereafter. One patient, a 73 year old male, deteriorated after 24 hours of support. Whereas the cardiac output during balloon pumping was 3.2 L./minute, when the pump was off, the cardiac output was only 0.9 L./minute. The second patient, a 76 year old female, was totally pump dependent despite 9 days of circulatory support. Two other patients, also over 70 years of age, died of intractable heart failure following termination of assistance.

Analysis of the five deaths revealed that all had experienced multiple previous infarctions and had been in shock up to 48 hours prior to institution of

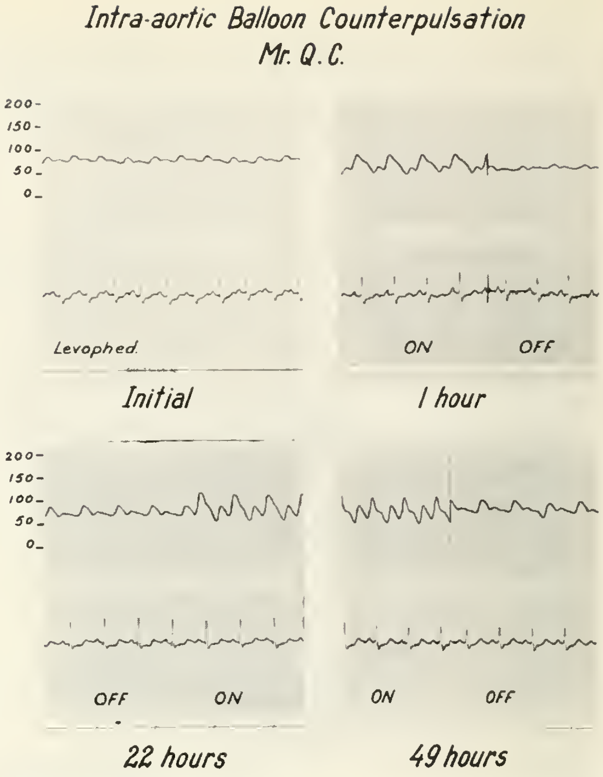

Figure 3 Sequential aortic pressure tracings in a patient treated for cardiogenic shock. Note prominent diastolic augmentation. Systolic pressure (pump off) did not rise to normal levels prior to 49 hours of assisted circulation.

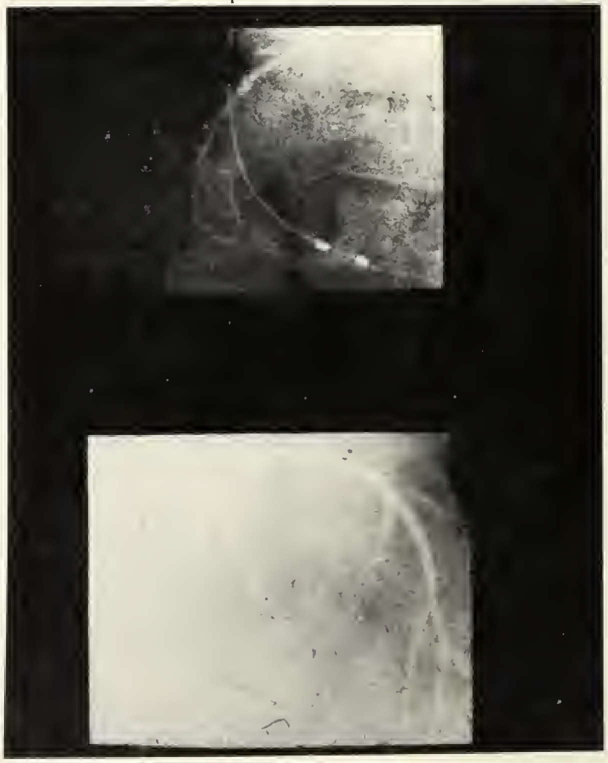

Figure 4 Cineangiogram indicating a localized occlusion of the mid right coronary artery (a) and of the proximal left anterior descending coronary artery (b).

assisted circulation. Autopsy showed almost global involvement of the left ventricle by fibrosis or acute infarction in every case and rupture of the interventricular septum in one (Table V).

TABLE V

COUNTERPULSATION FOR CARDIOGENIC SHOCK

MORTALITY REVIEW

	Y.B.	M.G.	N.K.	D.L.	M.E.
Age	75	70	46	72	73
Sex	F	M	M	M	M
Previous Myocardial Infarction	++	++	++	+++	++
Time Interval between Infarction and Shock (HRS.)	20	7	6	24	48
Duration in Shock (HRS.)	30	5	24	12	24
Period of Assistance (HRS.)	201	68	20	76	23
Pathologic Findings	GLOBAL INFARCTION	GLOBAL INFARCTION	GLOBAL INFARCTION	SEPTAL INFARCTION with RUPTURE of INTER VENTRICULAR SEPTUM	GLOBAL INFARCTION

Four of the six patients successfully weaned from assisted circulation recovered and were discharged (Figure 3). Two are alive and well at nine and twenty months. Two of the patients died suddenly at five and six months, respectively, and in both cases autopsy revealed localized proximal coronary occlusions and distal runoff suitable for aortocoronary vein grafting (Figure 4).

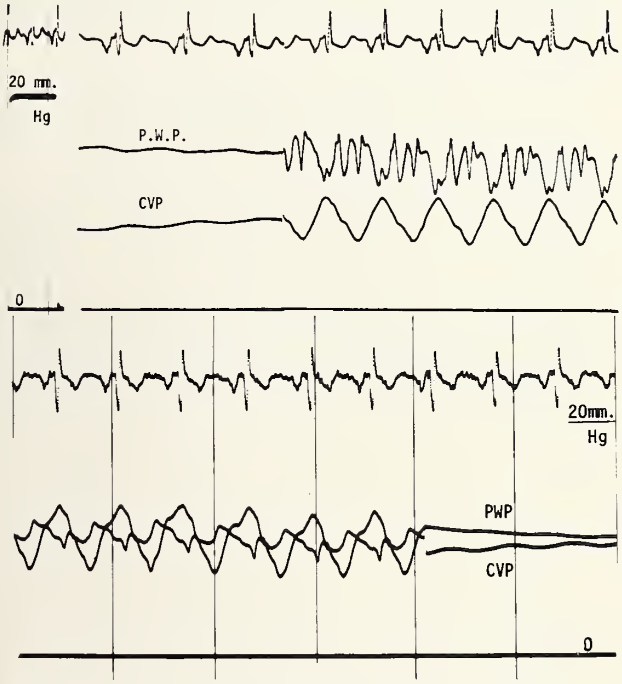

Figure 5 Tracings of pulmonary wedge and central venous pressure in a patient treated for persistent acute myocardial ischemia and left heart failure. Whereas the CVP was normal throughout, the pulmonary wedge pressure was still elevated after 24 hours of counterpulsation (a) and did not become normal until 48 hours (b).

Group II patients (Table VI) were assisted for 41, 48, 60 and 80 hours, respectively, (mean 57 hours). All were strikingly improved. Chest pain abated, heart rate slowed, mentation improved and urine output increased. Lessened myocardial ischemia was demonstrable in the electrocardiogram within 24 hours. Pulmonary congestion also diminished. All four patients were successfully weaned off circulatory support and three patients made a complete recovery and were discharged (Figure 5). One patient, 41 years old, who experienced progressive extension of myocardial infarction for five days prior to institution of assisted circulation developed intractable heart failure two weeks later and despite vigorous therapy, subsequently expired. Autops showed massive left ventricular infarction resulting from total occlusion of a dominant left main coronary artery with patent anterior descending and circumflex arteries.

TABLE VI

COUNTERPULSATION FOR PERSISTENT ACUTE MYOCARDIAL ISCHEMIA

RESULTS

(4 PATIENTS)

Duration of Counterpulsation (HRS.)		41-80 (MEAN 57)
Immediate result	IMPROVED	4
	NO IMPROVEMENT	0
Off assist		4
Discharged		3
Died		1 INTRACTABLE HEART FAILURE

Complications

The balloon catheter could not be inserted through the left common femoral artery in one patient, due to occlusion of the left iliac artery, and in another case, due to tortuosity of the aorta. In both patients, the balloon was passed without difficulty through the right common femoral artery. Dissection of an atherosclerotic aorta, opposite the balloon, was discovered at autopsy in the patient who had been assisted for 9 days. Embolic phenomenon or occlusion of the distal circulation in the lower extremities was not observed. One patient, however, developed transient foot drop after 24 hours of assistance during which time diminished circulation was apparent.

Hemolysis was minimal and plasma hemoglobin never rose above 10 mg. percent. Platelet count decreased initially in some patients but returned to normal within 24 to 48 hours.

Discussion

Technical simplicity, stability of response and minimal blood and tissue trauma make intra-aortic balloon counterpulsation an attractive modality for assisting circulation. The clinical findings tend to substantiate experimental observations that counterpulsation increases cardiac output and augments diastolic pressure, thereby enhancing coronary flow and collateral circulation to ischemic myocardium.[3] It also rapidly improves and maintains peripheral circulation until the heart can recover from its ischemic injury. Balloon counterpulsation can, therefore, play a valuable adjunctive therapeutic role in three phases of acute coronary artery disease — namely, cardiogenic shock, acute myocardial infarction with persistent ischemia and preinfarction syndrome.

In contrast to the almost universal mortality in cardiogenic shock, four of the nine patients (44%) treated by balloon pumping survived. The four patients who died following assistance showed infarction of more than 70% of the left ventricle, a condition which is uniformly fatal regardless of the mode of therapy.[1] It is our contention that any patient in cardiogenic shock not immediately responding to either volume expansion or pharmacologic therapy be treated by assisted circulation. Also that in patients showing persistent acute ischemia, counterpulsation, if instituted early, may prevent progressive ischemic changes and irreversible loss of myocardium in the peri-infarction zone by enhancing coronary collateral flow and by reducing left ventricular work and myocardial oxygen requirements. Fatal arrhythmia and cardiogenic shock may thereby be avoided.

Experience indicates that maximal hemodynamic benefit of counterpulsation is achieved within 48 hours. Left ventricular function curves reach optimal levels within 24-48 hours.[2] Continued circulatory support is not essential and may be deleterious. Patients dependent upon pump support beyond this period of time should, therefore, be studied to determine their candidacy for reparative or revascularization surgery. Where primary recovery has been achieved without the need for emergency surgery, arteriographic studies should be carried out prior to discharge since these patients cannot tolerate additional ischemic injury and run a high risk of sudden death.

Finally, counterpulsation should also be seriously considered in patients with preinfarction syndrome as specific treatment or to facilitate safe performance of coronary arteriographic and ventriculographic studies.[2] Such supportive application is also suggested by the effective use of counterpulsation in weaning patients off extracorporeal bypass[2 4] and by the observations that counterpulsation can rapidly relieve anginal symptoms.

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One Year's Experience with the Auto-Suture Stapling Device at the Day Kimball Hospital

Robert L. Painter, M.D., Sowhey Park, M.D., and David T. Hochberg, M.D.

ABSTRACT — This report tabulates the experience with the ACMI Auto-Suturing Device at the Day Kimball Hospital in Putnam, Connecticut from November 1, 1971 through October 31, 1972. These instruments, which have been in use at our institution for the past two and one half years, are still being evaluated across the country with regard to their effectiveness and safety, but because of their great popularity, testified by their use in over 110,000 cases last year alone, it is incumbent upon institutions using them to report their experience.

Materials and Methods

The stapling device is manufactured in this country. The suture lines are characterized by double staggered lines of staples shaped like the letter B when closed. The length of the individual staple is either 3.5 or 4.8 mm. for routine use or 2.5 mm. for the vascular staple. We utilized both the TA (thoraco-abdominal) and GIA (gastro-intestinal anastomosis) types of auto-sutures. The TA model is manufactured in three sizes depending upon the length of suture line desired. Thirty, 55, and 90 mm. lengths are available, laying down respectively 11, 19, and 33 separate staples. The second model, the GIA, lays down two double rows of eight staples each. Between the double rows of sutures a knife blade divides the tissues between the two staple rows at the same time the staples are set. Each suture line costs approximately $10.00 and each of the stapling instruments costs approximately $450.00 to $475.00. Other models provided by the same company include the "LDS" which divides pedicles of tissue between two staples and fascia and skin staplers. These were not evaluated.

A total of 84 operations was performed on 83 patients during the period of the study. There was a total of 88 separate operative procedures performed. In one patient both small and large bowel resections anastomoses were done. In two patients both lobectomy and wedge resection of a remaining lobe were accomplished. In one patient esophago-gastrostomy and colon resections with anastomosis were performed. The types of surgery performed can be placed in general categories as follows:

Pulmonary	20
Gastric	26
Small bowel	7
Large bowel	28
Esophageal	4
Miscellaneous	2

A total of six surgeons utilized the stapler at the Day Kimball Hospital with two surgeons performing 74 of the 84 operative procedures. The remaining ten operations were divided among four surgeons.

There was variation demonstrated in the extent the instruments were used in specific instances. For example in a typical gastrectomy and gastrojejunostomy, the instruments could be theoretically employed at four stages of the operation. The duodenal stump could be closed with one suture line, the proximal gastric stump closed with a second suture line, a gastrojejunostomy using the GIA anastomotic instrument performed as a third maneuver, and a fourth suture line utilized to close the stab wounds through which the GIA instrument was introduced. At times the stapler was used for all four steps while at other times any one or more of the various steps might be omitted. In pulmonary surgery during the early part of the study, the vascular staples were not utilized for the pulmonary vessels. This step was adopted later in the year.

In some instances the staples were the sole suture used while in others the staple line was buttressed with additional sutures. Intestinal anastomoses were created by some surgeons in a side-to-side isoperistaltic fashion. Other operators used a side-to-side anti-peristaltic union called a functional end to end anastomosis by Ravitch. Because of the small size of the series no effort was made to separate these variations in technique.

DR. ROBERT L. PAINTER, attending surgeon, DR. DAVID T. HOCHBERG, attending surgeon and DR. SOWHEY PARK, attending surgeon; all of the Day Kimball Hospital, Putnam, Conn.

Results

There were seven fatal complications representing a mortality of 8.3%. All of these patients were autopsied and none showed complications related to the use of the stapler. The causes of death were: myocardial infarction, hepatic failure, traumatic pancreatitis, pneumonia, and sepsis. That the staple lines were completely intact in these debilitating deaths attests to the value of this method of suturing.

There were three (3.5%) stapler-related non-fatal complications. The first was bleeding from a GIA gastrojejunostomy requiring reoperation. The second was a fistula at the site of a side to side ileocolostomy which was repaired by re-resection and another staple anastomosis. The last was a 10 day long airleak in a patient who had resection of an apical pulmonary bulla. The leak was caused by an improperly assembled stapler and incompletely closed staples.

Discussion

The automatic stapling devices were not universally accepted by all the members of the surgical staff at the Day Kimball Hospital. As can be seen from the report the use of the staplers was largely by two surgeons. The authors of this paper have felt sufficiently pleased with the advantages of the instruments to wish to continue their use.

The main advantages of the instruments are:

1. They appear to significantly shorten surgical operating time.
2. They cause less tissue trauma both by requiring less dissection of the structures to be stapled and by the atraumatic nature of the staple application itself.
3. The staple material is made of minimally reactive, monofilament material.
4. There is a better blood supply to the tissue beyond the staple line since the B-shaped sutures do not strangulate the blood supply.
5. It is our impression that stapled anastomoses open sooner.
6. The need for segmental pulmonary resections is almost eliminated by the ability to cross segmental lines without loss of tissue or compromising remaining lung tissue.
7. Better asepsis is sometimes possible as in a closed Meckel's diverticulectomy.
8. Certain deep wounds lend themselves to more safe and convenient suturing with the stapler, e.g., pelvic colon anastomoses and pulmonary vessel ligation.
9. Inversion of the staple line if desired is simple because of its neatness.

Disadvantages include:

1. There is difficulty in seeing bleeders in suture lines made with the GIA instrument.
2. At times the angle at which the stapler must be used is awkward.
3. Bleeding from the staple line may be troublesome enough to require additional sutures.
4. Our GYN surgeons have not found the stapler useful.
5. Unsuspecting radiologists may misinterpret the often barely perceptible suture line as an overlooked operative sponge.
6. Inadequate suture lines may be created if the surgeon is unfamilar with loading and assembling the instrument or with the correct size of staple to be used with each type of tissue, or if the stapler is used inappropriately.

Though it has been used for appendectomies and for transecting the rectus muscle, such use seems to us of little advantage. Its use in closing previously created aortopulmonary anastomoses in the total correction of Tetrology of Fallot as recommended by Laend seems a wise use of the machine and suggests its use in closing a patient ductus arteriosus as well.

Summary

In summary, those surgeons with experience using the auto-suture stapling devices at the Day Kimball Hospital feel that the instruments have been a valuable addition to our operative instrumentation, but caution that good surgical technique is still required in their use as it is with the use of sutures. Surgical residents should be trained to use these tools with the same excellence as they use in suture technique.

Though these instruments rightfully lend themselves well to inventive new applications, the indications for their use should not be stretched nor should they be used inappropriately out of habit or convenience.

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Duodenal Tumors at Hartford Hospital

Chester A. Wiese, Jr., M.D., and Ludwig J. Pyrtek, M.D.

Abstract — **A retrospective study of 58 duodenal tumors found in 23 years at Hartford Hospital was made with a 100 per cent followup of those patients who had a malignancy. The commonest duodenal tumor was carcinoma of the ampulla of Vater, with carcinoma of the duodenum a distant second. Radical pancreaticoduodenectomy is the treatment of choice when possible for these two malignancies, but in selected cases a local excision may be indicated. The operative mortality for radical excision should be around 10 per cent, and the surgeon should be alerted by the preoperative symptoms of jaundice, pain or weight loss to the possibility that radical resection may be necessary.**

Duodenal tumors though rare are common enough to appear from time to time during every general surgeon's practicing years, and when faced with one, the surgeon must make a valid on-the-spot decision regarding the best method of treatment. This decision, however, is usually based on relatively limited personal experience. Therefore, a review of duodenal tumors, including ampullary tumors, found at Hartford Hospital over a period of twenty-three years was made not only to compare our performance with others, but also to search for some guidelines perhaps useful in making future decisions about therapy.

Methods

A study was made of the medical records of all patients discharged from Hartford Hospital from 1950 to 1972 whose final diagnosis included duodenal tumor. One hundred percent of the patients having a malignant tumor were followed either through the Connecticut State Tumor Registry or through records of subsequent admissions to the hospital. In addition to the routine information included in the admission data base, the chief complaint, final diagnosis, treatment, and course following discharge from the hospital were noted. An analysis of the data was made to show the relative frequency of occurrence of duodenal tumors, the correlation of the chief complaint with the final diagnosis, and the relationship of the patient's subsequent clinical course with the treatment. Finally, a comparison was made between the Hartford Hospital findings and those of other centers.

Results

Carcinoma of the Ampulla of Vater

In the twenty-three years from 1950 to 1972, 58 duodenal tumors were found at Hartford Hospital, 38 malignant and 20 benign (Table I). The most common tumor by far was adenocarcinoma of the ampulla of Vater, with carcinoma of the duodenum a distant second. Of the 27 cases of carcinoma of the ampulla (Table II), 5 were incidental autopsy findings, one locally excised, 6 were bypassed, and 15 underwent radical pancreaticoduodenectomy (Whipple Resection). Those bypassed lived an average of 14 months. The one which was excised was in an 85-year old woman, who within one year of excision was found to have carcinoma of the rectum for which she underwent an anterior resection. Three years following the local excision of the ampullary tumor she died, and at autopsy the cause of death was confirmed to be extension of the rectal carcinoma. There was no evidence by gross or microscopic examination of any residual of the ampullary carcinoma. This patient's course suggests that in special instances local excision can be effective and should be given serious consideration. Of the 15 patients who underwent pancreaticoduodenectomy

DUODENAL TUMORS
HARTFORD HOSPITAL
1950 - 1972

TABLE I

MALIGNANT (38)	
Carcinoma of the Ampulla of Vater	27
Adenocarcinoma	7
Carcinoid	2
Leiomyosarcoma	1
Malignant Lymphoma	1
BENIGN (20)	
Adenomatous Polyp	5
Leiomyoma	5
Lipoma	3
Brunner's Gland Adenoma	2
Pancreatic Rest	2
Papilloma of Ampulla of Vater	1
Granular Neurolemma	1
Fibroma	1
TOTAL NUMBER OF CASES	58

DR. CHESTER A. WIESE, JR., Assistant Director, Department of Surgery and DR. LUDWIG J. PYRTEK, attending surgeon, Hartford Hospital, Hartford, Conn.

CARCINOMA OF THE AMPULLA OF VATER
27 CASES

TABLE II

No Treatment (Incidental Autopsy Finding)	5
Locally Excised (died in 3 years of Ca of Rectum without recurrence at autopsy)	1
Bypassed (Median Survival Time — 14 months)	6
Radically Resected (Whipple Procedure)	15

(Table III), 3 died immediately postoperatively, one from operative-site hemorrhage within 24 hours and 2 from upper gastro-intestinal hemorrhage, probably secondary to stress ulcers. Six died of proven disease after an average life of 2 years. The extension of the disease was local and to the liver, but in apparently no case was there distant metastases. Two died of other disease, 1 after 9 years, and the other after 11 years, both apparently "cured." Four are still living without evidence of disease, 2 for 1 year, 1 for 4, and 1 for 6 years. Thus, the overall 5-year survival of 12 patients undergoing pancreaticoduodenectomy for carcinoma of the ampulla of Vater at Hartford Hospital is 25 per cent, with an operative mortality of 20 per cent. Comparison with other series (Table IV), shows a wide range of operative mortalities, from 0 to 60 per cent, but Schwartz[5] states that around 10 per cent should be an acceptable figure. True 5-year survival figures also vary widely, but seem to center around 30 per cent.

CARCINOMA OF THE AMPULLA OF VATER
RADICAL RESECTION (WHIPPLE)
15 CASES

TABLE III

Living without Evidence of Disease (9 months; 1 year; 4 years; 6 years)	4
Died Immediately Postoperatively	3 (20%)
Died with Proven Recurrence (1 year; 1½ years; 2 years; 2 years; 2 years; 4 years)	6
Died of Other Disease (9 years; 11 years)	2

Adenocarcinoma of the Duodenum

There were 7 cases of adenocarcinoma of the duodenum (Table V). One was found at autopsy after death on a medical service, 2 were bypassed and lived a short time. Four patients underwent radical resection, 1 dying immediately probably of an anastomotic breakdown, although there was no autopsy to confirm it. One died within three months, apparently of inanition, but again there was no autopsy. Two are living without evidence of disease, 1 for 1 year, the other 4 years.

CARCINOMA OF THE AMPULLA OF VATER
RADICAL RESECTIONS

TABLE IV

	No. Cases	Op. Mort.	5-yr. Surv.	Mean Surv.
Moody & Thorbjarnarsan[1] (NYH-1964)	24	25%	36%	37 mos.
James-Composite Review[2] (Columbus-1966)	311		18.5%	
Morris & Nardi[3] (MGH-1966)	5	60%	100%	over 10 yrs.
Warren et al.[4] (Lahey-1968)	93	10.8%	30%	
Schwartz[5] (Rochester-1969)		10%	36%	
Ponka & Uthappa[6] (Henry Ford-1971)	8	none		59 mos.
Hartford Hospital (1972)	15	20%	25%	39 mos.

TABLE V

ADENOCARCINOMA OF THE DUODENUM
7 CASES

Incidental Finding at Autopsy	1
Bypassed (survived 9 days; 9 months)	2
Radically Resected (Whipple)	4
Died Immediately Postoperatively	1
Died with Disease (3 months)	1
Living without Evidence of Disease (10 months; 4 years)	2

Other Malignant Tumors

Of the remaining malignant duodenal tumors in this series (Table VI), 2 were carcinoids, each found at the time of subtotal gastrectomy being performed for "bleeding duodenal ulcer." No further treatment was given, and 1 died of other disease without evidence of recurrence after 21 years. The second patient, who is the son of the first, is living without evidence of disease 6 years after operation. A patient found to have leiomyosarcoma of the duo-

TABLE VI

CARCINOID TUMORS OF THE DUODENUM
2 CASES

FOUND DURING SUBTOTAL GASTRECTOMY FOR ULCER
Lived 21 years without recurrence
Living without evidence of disease at 6 years

LEIOMYOSARCOMA OF THE DUODENUM
Still living without evidence of disease 18 years after radical resection.

MALIGNANT LYMPHOMA OF DUODENUM
Still living without evidence of disease 12 years after biopsy and radiation.

denum is living without evidence of disease 18 years following radical resection. One patient with malignant lymphoma proven by biopsy and apparently limited to the duodenum, is living without evidence of recurrence 12 years after radiation.

Symptoms and Diagnosis

In an effort to help the clinician make a preoperative diagnosis of duodenal tumor, the chief complaint of each patient was correlated to the proven tissue diagnosis (Table VII). It was not surprising to find that 70 per cent of those patients who proved to have carcinoma of the ampulla of Vater presented with jaundice. It was interesting that none of those with carcinoma of the duodenum had jaundice at any time, whereas 40 per cent had upper gastro-intestinal bleeding and 30 per cent pain or weight loss or both. The symptom most commonly recorded for those patients with benign duodenal tumors was gastrointestinal hemorrhage.

TABLE VII

CHIEF COMPLAINT

	Benign Tumors	Ampullary Ca	Duodenal Ca
Jaundice	5%	70%	0
Bleeding	40%	8%	40%
Pain	20%	4%	30%
Weight Loss	0%	0%	30%
Not Recorded	35%	18%	0

Comments

It is difficult to draw conclusions from a single small series, but certain facts which seem evident when viewing the Hartford Hospital experience and that of other institutions may be helpful. First, the commonest malignant duodenal tumor, carcinoma of the ampulla, can be effectively treated by radical pancreaticoduodenectomy if attacked early, since death is by local extension rather than by distant metastases. Second, in selected cases, such as poor operative risks, particularly in the elderly with a relatively short life expectancy, local excision may prevent an operative death and still afford a reasonable chance for a good result. Third, postoperative deaths are due most often to technical errors or to lack of meticulous postoperative care rather than to generally unpreventable events such as pulmonary emboli or myocardial infarctions. Therefore, a 10 per cent operative mortality should be a reasonably acceptable figure. When it is significantly exceeded, perhaps a close look at the causes is indicated. Fourth, although it is not possible on symptoms alone preoperatively to make an accurate diagnosis of the type of duodenal tumor present, the possibility of finding a resectable malignancy must be uppermost in the surgeon's mind from the beginning so that he is mentally prepared to undertake an extensive resection. Jaundice, pain and weight loss with indications of the presence of a duodenal tumor as the cause are cardinal signs of a malignancy.

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SOCIAL CALLS ON ANOTHER PHYSICIAN'S PATIENTS

When a physician makes social calls on another physician's patient he should avoid conversation about the patient's illness. — *Opinions and Reports, Judicial Council of the A.M.A.*

THE PRESIDENT'S PAGE

Writing for this page last month, we described our support for a resolution to be presented to the December AMA meeting in California which, in essence, stated that when a third party payor becomes involved in the physician-patient relationship, confidentiality of information is often jeopardized or lost completely.

The resolution also stated that in becoming a subscriber to an insurance program, the individual wittingly or unwittingly signs away his rights to confidentiality.

Since that writing, the undersigned became a patient himself because of an acutely inflamed appendix.

In the mail about a week later arrived the claims form to be completed in order to receive the benefits of our insurance contract. I was required to sign the following statement:

"I hereby authorize *any* physician who has attended me, or *any* hospital where I may have been a patient, or any other individual or association who may have given me medical treatment to disclose *any* information thus acquired. My consent is hereby granted to use this or a photostatic copy as equally valid authorization."

I would have no objection to furnishing information germane to the episode of the illness. But this all-inclusive, far-reaching, permissive document greatly exceeds the information needed by any insurance carrier to complete its claims paper work. The Internal Revenue Service is scarcely more demanding in its insistence on being given "all the facts!"

SIDNEY L. CRAMER, M.D.
President

Connecticut Medicine

Editorials

Hospital Assessments

The *New York Times* on December 9, 1973 carried a story that the medical staff of the Maimonides Hospital in New York City had assessed each of its members $500 to prevent a cutback in some hospital services because of a "serious financial crisis" of the hospital. This was a medical staff action, not of the hospital administration or trustees. Though the assessment affected a 250 member staff, the vote at a staff meeting was 27 to 6 with 4 abstentions. The assessment is to be mandatory for reappointment, in addition to dues running from $20 to $75, depending on the member's rank. The president of the medical staff stated to the press that a committee was being set up to hear hardship complaints with the power to excuse or reduce donations.

Though I believe this can be discussed without the benefit of precedent or of any opinion by the Judicial Council of the AMA, and I shall, it is instructive to state briefly what the Judicial Council has said about such assessments. It states (Opinions and Reports 1970-71 edition) that neither the hospital management nor the medical staff has the privilege or right to make compulsory assessments on the medical staff for building funds, or condition membership or reappointment on compulsory assessment for any purpose.

This is a perversion of the legitimate authority of a medical staff. Many physicians may say that a majority vote of the medical staff, or of its executive committee, is binding, and democratic. I disagree. Basic to our American tradition, and I extrapolate this to actions of a medical staff, is the belief that there are certain rights so basic to an individual that they are beyond the reach of the majority, or as deToqueville said, "the tyranny of the majority." They have been imprinted into our Bill of Rights. Such an assessment is contrary to this tradition.

Too often cliques in hospital medical staffs arrogate to themselves such powers, relying on seniority and tradition, and the too prevalent attitude among physicians on medical staffs that the best way to "get along is to go along." The history of hospital medical staffs certainly cannot be used as a paradigm for our American tradition of democracy in action.

There is still a lack of understanding by physicians as well as lay people on hospital boards of the status of voluntary, non-profit hospitals. The days of their being private beyond the scrutiny of outside influences have long since passed; they have become "quasi-public." Their actions are increasingly being scrutinized by the courts, and certainly by governmental bodies. Part of the tendency of such arbitrary actions by medical staffs has been the belief on their part and of "organized medicine" beginning at its highest level, that their actions, even in ethics, do not come within the jurisdiction of county or state societies, or of the AMA. This, I hope and believe, should and shall change.

The hospital does not "belong" to the lay board of trustees, or to the administrator, or to the medical staff. The moment a hospital receives financial assistance from the public or tax benefits, it loses its private status. Its actions increasingly will be scrutinized and reviewed by the courts and agencies of the public and government. It has been a slow process, but is inexorable.

The newspaper also reported that several members of the staff had already been in touch with the attorney general to ascertain the legality of the assessment. This has been the usual course of events: Lacking a recognized avenue of appeal within the profession, frustrated physicians on hospital staffs have had to resort to the courts for adjudication to protect their hospital "privileges."

I suggest that any medical staff that makes such an assessment, especially conditioning a physician's appointment on it, carefully consider all facets of such an action.

Fred Fabro, M.D.

Reflections From the Dean's Office

Robert U. Massey, M.D.

"The last temptation is the greatest
treason:
To do the right deed for the wrong
reason."
T. S. Eliot, "Murder in the Cathedral"

It is a dangerous game to judge a man's act by what we believe to have been his intention. Yet finally the quality of the act must depend on why it was done. Dangerous if applied to the law, the reason why is at the heart of any ethical judgment. A little later Eliot has the Archbishop repeat the theme:

"For those who serve the greater cause may
make the cause serve them,
Still doing right."

When I was in medical school, a hard-working fellow student once refused an invitation to accompany a few of us to the local movie, saying that he had work to do. There were no exams the next day, but "what I learn tonight could be critical in saving a life someday."

Members of medical school admission committees are troubled by the hard decisions which they must make. Their decisions, more than any others, may determine the quality of American medicine in the future. They are the gatekeepers. The number of applicants to the nation's medical schools is now almost four times the number of available places, in spite of the fact that the number of available positions has almost doubled in the past fifteen years. Not all of these applicants are qualified by any standards, yet many more could finish medical school successfully than are permitted to try. Who is being kept out and who is getting in?

Applicants are first screened by undergraduate grade point averages and scores on the medical college admissions test. When that has been done, the choices begin to be hard.

"Attitudinal factors" or "noncognitive attributes" are the names sometimes used to label the nonquantifiable qualities which may weigh heavily in the final judgment. Again, this is dangerous ground. The right attitudes are those most like mine. The right set of values are those which harmonize most closely with my values, or what I imagine my values to be.

There is no doubt that judgments about another man's values, intentions, or motives are dangerous. But many of us have the feeling that if we were to abandon the field altogether, chaos and confusion would overpower us sooner or later and the moral heights would be taken again only with great difficulty.

When there was one dominant cultural and ethical system in the West, based upon a common religious tradition which few questioned, judging our fellows against a "universal" standard would not have been too difficult. We would have undoubtedly worried about getting mixed up with arguments about intentions, but even here it would have been easier because no one had invented the subconscious.

Now that the world is small and many cultures and subcultures with all sorts of religious and social backgrounds work and live together, unseparated by geographic and temporal insulation, ethical judgments become matters which no one — not even an admissions committee — is willing to confront. All claim equal legitimacy and there is no one to decide.

When a physician undertakes the treatment of his patient, the interests of the patient legally must come first. But we all know that that is not enough; it is really only the barest beginning and, for an ethical man, hardly worth saying. The patient should expect the most humane, concerned, intelligent, and skillful treatment possible. The physician will have or will obtain the best knowledge available, and he will repeat that performance time after time with every encounter. Anything less than that is unethical practice; there is no room for alibi. Both the work and the patient have undeniable ethical claims.

How do admissions committees find men and women whose ethical systems are in top working order?

ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.

Letters To The Editor

Letters to the Editor are welcomed and will be published, if found suitable, as space permits. Like other material submitted for publication, they must be typewritten *double spaced* (including references), must not exceed 1½ pages in length and will be subject to editing and possible abridgment.

To the Editor: The character and contents of the articles of *Connecticut Medicine* are excellent; they serve all, the active practitioner, the researchers, administrative, and political physicians.

I am referring among others to the excellent paper of Dr. Ludmil A. Chotkowski titled "Hungry Heart Syndrome" which appeared in August, 1973 issue, vol. 37, No. 8. It is a unique study and most interesting.

I believe that the Editorial Board is an apt successor to the unforgettable Dr. Louis Nahum.

Sincerely yours,

Egmont J. Orbach, M.D.

New Britain, Conn.

Editor's Note: *The Editorial Board and the Editor naturally appreciate this letter during this transitional phase in the Journal. We are equally interested in criticisms and suggestions. We have, for example, the results of an informal survey questionnaire of the staff of a medium sized community hospital. A sizeable percentage still see no need for the Journal, mainly because the scientific articles are not within the specialty of the individual, a difficulty for every general journal. But we hope that the nonscientific articles will develop an interest. We have plans to report meetings of the various state committees, to add a law editor, to include a section on infant and perinatal mortality, and Yale medical grand rounds. We ask only that the members peruse the table of contents and skim the Journal — then suggest.*

To the Editor: "The Hyperkinetic Behavior Syndrome" by Drs. Thomas Gorin and Robert A. Kramer in the November issue of *Connecticut Medicine* presents a clinical problem with wide ramifications. Fortunately, most teachers, principals, social workers, psychologists, and physicians recognize that hyperactivity in childhood has many etiologies. Careful professional evaluation of the hyperactive child is imperative in order to plan for appropriate educational and therapeutic intervention. One conclusion is obvious: that is, a child who experiences uncontrollable hyperactivity, particularly when he has an associated clumsiness and inadequacy in physical activities, develops a chronic sense of failure and becomes a desperately unhappy child.

> " . . . 'Minimal brain dysfunction syndrome' refers . . . to children of near average, average, or above average intelligence with certain learning or behavioral disabilities ranging from mild to severe, which are associated with deviations in function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory and control of attention, impulse or motor control."[1]

The authors stress the hyperactive kinetic behavior syndrome, one type of minimal brain dysfunction. These children possess an inability to establish priorities as they respond to outside stimuli. They dart about, shifting their interest quickly, and seemingly without purpose. They are in constant trouble because they cannot de-emphasize responses to stimuli. They literally do not know which of the stimuli they receive deserve top priority at any given moment.

Hyperactive children often present a history of fetal stress (threatened abortion, maternal viral infection, placental insufficiency); or perinatal stress (prolonged labor, breech presentation, Cesarean delivery after an unsuccessful long trial at labor, difficulties in initiation of respiration); or neonatal stress, (hyperbilirubenemia, respiratory distress syndrome or hypoglycemia). There is often an unusual period of restlessness in early infancy. Maternal malnutrition prior to conception as well as during pregnancy, and unrecognized effects of lead poisoning during foetal life and infancy may explain the high frequency of this syndrome among inner city and low income families.[2]

These are the children who may benefit from methylphenidate (ritalen).[3] The primary objective is *not* to calm a child. It is to improve his cerebral efficiency so that he can place appropriate priority to specific demands, particularly in the classroom.

There are other reasons why a child may be restless and hyperactive. Perceptual deficit in the visual motor function is a common finding. Such a child confuses "b" with "d," "p" with "q," "m" with "w," "saw" with "was." Distinguishing left from right, or up from down is a tremendous task and may be impossible for many years. This disability makes it difficult to learn to read and to follow written instructions. An intelligent well motivated child may struggle and compensate for this deficit but school work is exhausting. Many children with this deficit find it just too tiring to continue their work. They give up, fall behind, and become restless and hyperactive.

Children with perceptual difficulties benefit from the specialized teaching and supplemental tutoring which each Connecticut school system is legally responsible to provide in such instances.

There are other children, who, although they read 20/20 with each eye, do have difficulty in maintaining fused vision. Letters and words become blurred after a few minutes of concentration. These children can be helped by appropriate glasses and visual training.

Many other factors produce learning disabilities, restlessness, and hyperactivity. Some children are just plain hungry! Federal subsidies for school breakfasts are vastly under-utilized in most Connecticut schools.

One must always consider hearing and visual deficits. Also there are children, though rare, who suffer from serious auditory and visual aphasias.

Many restless children reflect the experience of living in familial and socio-economic chaos, resulting in psychologic and nutritional deprivation.

Drs. Gorin and Kramer emphasize the frequency of hyperactivity among Connecticut school children. Drs. Fleck and Fabro deplore retrenchment in pupil services. Physicians must take the lead in supporting thorough evaluation programs so that *all* children can have complete assessment of the capacities and abilities. To fail to assume this responsibility is inconsistent with our commitment as physicians and as citizens.

Morris A. Wessel, M.D.

New Haven, Conn.

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PHYSICIAN PLACEMENT SERVICE

The Connecticut State Medical Society maintains a placement service for the convenience of Connecticut physicians, hospitals and/or communities in search of candidates for positions available in our state. A description of such opportunities should be forwarded to the Physician Placement Service, 160 St. Ronan Street, New Haven, Connecticut 06511. (203-865-0587).

Physicians wishing to locate in Connecticut are invited to submit a resume to be kept on file with the Physician Placement Service. Candidates are requested to inform the Society when they are no longer available for consideration for opportunities which might be available in Connecticut.

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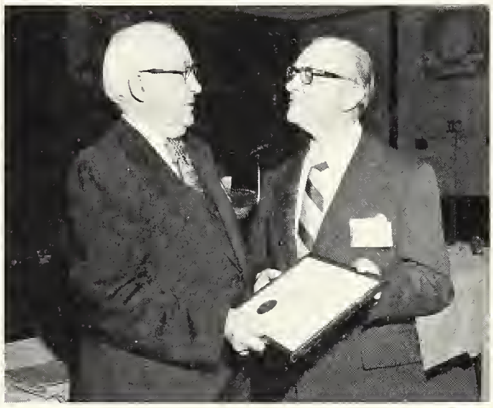
Honorary Degree in Medicine Awarded to Ira V. Hiscock, M.P.H., Sc.D.



Presentation by Sidney L. Cramer, President

Members of the House of Delegates and Guests:

I feel personally privileged to be president of the Connecticut State Medical Society on one of the infrequent occasions on which, by unanimous vote of our House of Delegates, we are to bestow an Honorary Degree in Medicine upon a most worthy recipient. I say "infrequent" because, during the period of the past forty years and more, the Society has made only five such awards even though the authority to do so is as old as our Charter — granted back in 1792.

From 1792 until 1814 — the year in which what is now the Yale University School of Medicine graduated its first class of student physicians — the Medical Society conferred the degree of Doctor of Medicine on those completing the curriculum satisfactorily, and, in fact, because there was no Medical Examining Board in those days, also passed on the qualifications of *all* who aspired to practice medicine in Connecticut. Subsequent to 1814, the Society voluntarily transferred the principal exercise of its degree-conferring authority to Yale University and, since that time, has limited its awarding of M.D. degree to those of an honorary nature.

Our Bylaws provide that we may honor, as a degree recipient, "a person, *not* a physician, distinguished in the sciences of medicine or for contributions to human welfare." The man we honor today certainly qualifies on both counts.

A native of the State of Maine, he received his A.B. and M.A. from Wesleyan University in Middletown, Connecticut, in 1914 and 1916 respectively, and his Master's degree in Public Health from Yale University in 1921. In 1939, he was made an honorary Doctor of Science by Wesleyan, his alma mater, and he has been an Associate member of our Society since 1941. So much for vital statistics!

It would be in extremely poor taste, I think, for me to speak at greater length in making this presentation than its recipient is likely to speak in acceptance. For that reason, I shall not even attempt to recount — item by item and year by year — the outstanding record of accomplishment that he has made in the field of public health and the medical sciences. Suffice it to say that, whether as a distinguished teacher in academic settings or in aiding Connecticut communities to plan and effectively utilize their health care resources; whether as a high-ranking officer in the Sanitary Corps during World War II or as a consultant to health agencies the world over; whether as a dedicated participant and leader in the work of myraid voluntary organizations concerned with health, both locally and nationally, or as an indefatigable champion of ever-better health and medical care for all our people — whether serving in these varied roles or in many others, the recipient of the degree we are about to bestow has regularly demonstrated the admirable qualities of modesty, good humor, friendliness, tact and wisdom, and these have caused him to be held in esteem by those who have known and worked with him to a degree above and beyond that to which his acknowledged professional expertise has entitled him.

Dr. Hiscock, will you please rise and join me at the podium.

Sir, we have been advised that, in your early years, you aspired to pursue a course in medicine but that a combination of circumstances made impossible the realization of that aspiration. Nevertheless, it is the unanimous opinion of the members of this House of Delegates — and of physicians everywhere — that your good works in a closely allied field have served to help all of us carry out one of the key objectives defined by our Society's founders in 1792 — that the medical profession should become increasingly useful to the public in the prevention and care of disease and in prolonging and adding comfort to life. For those good works and for that help we are greatly in your debt.

And so, Ira Vaughan Hiscock, under the authority granted to the Connecticut State Medical Society by its Charter, it is my privilege and pleasure to bestow upon you the Honorary Degree in Medicine "in recognition of your many outstanding contributions to betterment of the public health and the science of medicine," and to present to you this certificate which attests thereto.

Congratulations! Ladies and gentlemen, may I now introduce to you Ira V. Hiscock, *M.D.*

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BOOK REVIEWS

THE UROKINASE PULMONARY EMBOLISM TRIAL — A National Cooperative Study. Arthur A. Sasahara, M.D. and Thomas Hyers, M.D., Co-Chairmen. American Heart Association Monograph Number 39, 108 pp. Illustrations, $4.00.

Reviewed by Benjamin J. Lord, Jr., M.D.

This monograph reports on the controlled clinical trial of urokinase, a plasminogen activator derived from human urine, as a thrombolytic agent. Pulmonary embolism was chosen as the disease model because diagnostic techniques such as pulmonary angiography and perfusion lung scanning permitted quantitative assessment of the number of vessels involved and the size of the infarcted area.

The protocol was designed not only to compare the thrombolytic capability of urokinase with heparin, but also to study the disease model, pulmonary embolism. Fourteen centers were involved in the study which began in 1968 and terminated in 1970. A total of 160 patients were randomized and treated, 82 with urokinase and 78 with heparin.

All patients received heparin and other appropriate medical treatment during diagnostic evaluation before randomization. When a patient's pulmonary angiogram met the diagnostic criteria for pulmonary embolism, a study drug assignment was obtained and the patient was started on a 12 hour infusion of heparin or urokinase.

Pulmonary angiography, lung scanning and hemodynamic measurements were repeated 24 hours after the beginning of the infusion. After the infusion all patients received heparin anticoagulation for a minimum of 5 days, followed by heparin or warfarin therapy for a total of 14 days.

Of the patients who received urokinase, 31% had a large improvement at 24 hours in their angiogram, lung scan and pulmonary artery mean pressure. No patient treated with heparin had comparable improvement. However, urokinase appeared to have a greater effect on these measurements in patients with massive embolism. The report concludes that urokinase may thus be of particular value in patients with massive pulmonary embolism in shock. Survival among such patients who have undergone pulmonary embolectomy has been very low; "medical embolectomy" with thrombolytic therapy may be preferable.

During the two week period of observation, recurrent pulmonary embolism was described in 17% of the urokinase patients and 23% of the heparin patients. Six urokinase patients and seven heparin patients died.

The most commonly observed therapeutic complication during the first two weeks was bleeding; this occurred in 45% of the urokinase patients and 27% of the heparin patients.

Because underdiagnosis is still a major problem in pulmonary embolism, the clinical presentation of the TRIAL patients should be emphasized. The most common symptom was dyspnea (81%) followed by pleuritic pain (72%), apprehension (59%), cough (54%) and hemoptysis (34%). The most common physical signs were rales and a loud pulmonary second sound (53%) followed by tachycardia (43%), S3 or S4 gallop sound (34%), sweating (34%) and phlebitis (33%).

Nonspecificity of symptoms becomes even more prominent if only the patients with massive embolism are analyzed: dyspnea (79%), apprehension (61%), pleuritic pain (62%) and hemoptysis (27%). Similarly for signs: tachypnea (88%), tachycardia (63%) and pleural friction rub (17%).

American Medical Association Policy of Professional Standards Review Organizations

As Amended and Adopted by the House of Delegates, December, 1973

In the Report of the Board of Trustees and the Council on Medical Service on "Professional Standards Review Organizations," the Association's concern over the PSRO program prior to its passage was noted. It should be recalled that the law was passed over the objections of the AMA and its spokesmen before Congress. However, the report noted that, since PL 92-603 has been adopted, the Council and the Board believed "that the American Medical Association should provide a dominant role of leadership in the implementation of the PSRO program to assure that the best interests of the public and the profession are preserved."

In line with this leadership role, specific responsibilities were assigned to the Advisory Committee created by House adoption of that Report, including development of rules and regulations, assisting state and county associations in developing PSROs, and furnishing material for the Council on Legislation in its development of future peer review legislation.

At the 1973 Annual Convention, in adopting substitute Resolution 49, the House recognized that repeal or modification of PSRO legislation "ultimately may be required to preserve the high quality of patient care," but instructed the Association to place "highest priority on developing and pursuing appropriate amendments to preserve the high quality of patient care." Board of Trustees Report A at this session indicates that possible changes in the law are under study; information concerning this activity is incorporated with this report.

It is stressed that at all times the House of Delegates determines Association policy and that it is the role of the councils, committees, and the Board of Trustees to implement this policy.

For the information of the House of Delegates, the Board of Trustees and the Council on Medical service feel obligated to make the following observations:

(1) Our very best information from Washington and bipartisan Congressional leadership is that there is no current political viability in an effort to repeal PSRO.

(2) Similar exploration suggests that there is Congressional receptivity to consideration of amendments to the law.

(3) "Non-participation" can be interpreted in several ways. Non-participation by constituent and component medical societies refers to the unwillingness of such societies to cooperate in the development of PSROs. Non-participation by individual physicians implies unwillingness to provide professional reimbursable services for Medicare and Medicaid beneficiaries. In general, non-participation by organized medicine in the development of PSROs would be an abrogation by the profession of its responsibility to the public and the profession to assure that monitoring of the quality and cost of medical care is professionally oriented. Regardless of participation or non-participation by physicians or medical organizations, no physician can escape review of his Medicare and Medicaid services as long as the law remains in force.

(4) A significant proportion of the profession appears to agree that amendments to the law can improve it. The Board of Trustees and its Council on Legislation are currently preparing a series of amendments.

(5) Experience in developing the mandated AMA leadership role in PSRO implementation has identified many areas where such amendments may be necessary.

(6) Government resistance to Association recommendations in some areas indicates that, for certain facets of the program, amendment may be a more effective approach than attempts to influence regulations and directives.

(7) The PSRO law is widely interpreted as a cost control measure. However, there is reason to believe that it may generate costs in excess of savings.

(8) If PSRO legislation were to be repealed, other cost control measures now existing in law would be applied. Other legislative measures for cost containment would certainly be introduced.

In the light of the observations noted above, the options available to the Association are:

(A) To improve the law through development of regulations and administrative practices;

(B) To seek amendments to the law which would remove the undesirable features of the present statute;

(C) To promote repeal of the law;

(D) To suggest non-participation by all constituent and component societies. Such non-participation would specifically refer to the establishment of a PSRO by a unit of organized medicine.

Finally, it should be recognized that these options are not necessarily mutually exclusive.

The Board of Trustees and the Council on Medical Service are aware of the possibility that the House of Delegates could elect to support the idea of repeal of the law. However, the practical considerations indicate that this may be impossible to achieve, so that there should be a policy position which would prevail so long as the law remains in force.

The AMA affirms the following principles:

1. That the medical profession remains firmly committed to the principle of peer review, under professional direction, and

2. That medical society programs of proven effectiveness should not be dismantled by PSRO implementation, and

3. That the Association suggests that each hospital medical staff, working with the local medical society, continue to develop its own peer review, based upon principles of sound medical practice and documentable objective criteria, so as to certify that objective review of quality and utilization does take place; to make these review procedures sufficiently strong as to be unassailable by any outside party or parties; and that the local and state medical societies take all legal steps to resist the intrusion of any third party into the practice of medicine, and

4. That this House of Delegates, as individual physicians and through the Board of Trustees and its Council on Legislation, work to inform the public and legislators as to the potential deleterious effects of this law on the quality, confidentiality and cost of medical care; and the hope that the Congress in their wisdom will respond by either repeal, modification, or interpretation of rules which will protect the public.

The considered opinion of this House of Delegates is that the best interests of the American people, our patients, would be served by the repeal of the present PSRO legislation. It is also believed that this is consistent with our long-standing policy and opposition to this legislation prior to passage.

The considered opinion of the Board of Trustees and the Council on Medical Service is to recommend to the House of Delegates that the AMA continue to exert its leadership and support constructive amendments to the PSRO law, coupled with continuation of the effort to develop appropriate rules and regulations.

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Medical Research Ethics: The Dilemma of Science and Therapy

Bernard Barber, Ph.D.

In rudimentary form, medical experimentation has existed since the cure of illness began. But in its systematic, pervasive, and scientific form, experimentation on human beings is one of the best products of our own twentieth century. Its remarkable achievements are everywhere to see. This century will surely be marked as the time when biomedical science came to maturity, both in theory and in its application.

Since man is the animal of necessity in all biological research which has any proximate therapeutic intent, experimentation on human beings has increased steadily, perhaps exponentially, in this century, as we have learned more about physiological processes, scientific techniques (e.g., double blind procedures, sampling, etc.), and about the therapeutic efficacy of such agents as antibiotics. One hears less and less in medicine of that ancient maxim, "first of all, do no harm." Increasingly, the prescription is for the heroic interventions which our progress has made possible. Scientific medicine is more and more the goal and even, happily, more and more the reality. Medical schools concentrate on instilling the scientific ideal as well as scientific practice.

Human experimentation is necessary and good for scientific medicine, but is it good when judged by other standards or in the light of other ends? Just because of the great increase in experimentation, with its attendant costs of inconvenience, risk, and occasional harm for many subjects, this is a question which would probably have been asked anyway, on grounds of rational calculation of interest. But it is all the more a question which has been asked in recent times because of a great moral change which characterizes our age as much as medical progress does. This is the age of the citizen — as Professor T. H. Marshall put it in his Marshall lectures of 1949 — of the member of society with claims to genuine equality of dignity and hence to equality of treatment in all respects, with the right to share somehow in the making of decisions which affect his vital interests and values. In short, it is the age of civil rights: for black as well as white, for the young as well as the old, for women as well as men, for students as well as teachers, and — for present purposes — for subjects as well as biomedical scientists. The American Hospital Association has just recognized this explicitly in its Bill of Rights for Patients. The bill gives formal promulgation to the new climate of opinion, for both the therapeutic and the research treatment of all hospital patients.

The profession of medical research has had a part in asking the question: "Is experimentation always good for its human subjects?" Various world and national medical conferences, from Nuremberg to Helsinki, have formulated codes of ethics for the protection of human subjects. Medical men like Dr. Henry Beecher in the United States and Dr. M. M. Pappworth in England have published books which demonstrate that experimentation is not, in practice, always good for its subjects, and they have appealed to research workers to change their ways. Medical scientists at the United States National Institutes of Health (NIH) were instrumental in formulating the regulations issued in 1966, requiring all research supported by the NIH to be scrutinized for its conformity with ethical standards by locally constituted committees made up of professional peers. In England, the Royal College of Physicians has recommended a voluntary system of "peer-group review." However, according to the World Health Organization, only in the United States is there a governmentally required system of control, through peer-review, over experimentation. And, finally, many of the specialized societies of the medical profession have had a session, at one of their annual meetings over the last few years, on the ethics of experimentation.

And yet, one cannot say that the medical profession has given to this matter the serious, intensive, continuing attention it deserves, whether one considers the medical profession's own traditional values or the new demands for better practice in this field which the public and its representatives are now making. If one compares the initiative and activity of biomedical scientists in seeking funds for research and training, with their efforts to clarify, teach and practice ethical standards in experimentation, one finds the latter wanting. And apart

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BERNARD BARBER, Ph.D., Professor and Chairman, Department of Sociology, Barnard College, Columbia University, New York.

from such necessary new institutional mechanisms — as an effective system for reporting on the ethical problems of the profession or a commission on standards and training which has not yet been created by the medical profession — there persists a lack of attention to these matters, and a widespread ignorance, which probably accounts for the weakness of institutional arrangements.

Even in the face of some of the unjust charges made in connection with the Tuskegee syphilis experiments, biomedical research workers have been unable to make out the good case for their profession which they could have made. No wonder that United States Senators Javits, Kennedy, and Humphrey have all introduced legislative proposals for the protection of human subjects, and that it is likely that such legislation will be enacted. To be sure, it is unlikely that such a statute will do any considerable harm to biomedical research, yet if the biomedical research profession does not change its ways and make it work effectively, more restrictive and more harmful legislation may be forthcoming. Biomedical research apparently still has the trust of the public in the United States, while the therapeutic side of the profession seems to be losing it — if we may judge from the rising numbers of malpractice suits. If confidence in research is to be maintained, the research profession will have to do more than it has done so far.

Nonetheless, the training which the American medical schools provide for biomedical research workers in the ethical problems of experimentation has been quite unsatisfactory. Only 13 per cent of a sample of 350 medical research workers said they had had a seminar, a lecture, or part of a course devoted to the issues involved in the use of human subjects.* Thirteen per cent said that the ethical issues of research had come up when, as students, they performed practice procedures on one another. Twenty-four per cent said they became aware of the issue of the "risk-benefit ratio," which is a central issue in doing experiments, when they were doing experimental work on animals. Thirty-four per cent remembered discussions with teachers or with other students on the ethical issues involved in specific research projects, which they learned of in class or through the professional or scientific literature. But 57 per cent reported that they had never been brought into such confrontation with the ethical problems of experimentation.

There is obviously a great need for more concerned and thoughtful attention to this matter. And this is a need not just for those physicians who do research and who use human subjects, but for all physicians who are likely to recommend their patients at some point to hospitals and clinics where research is part of the routine. The physician who wishes to meet his responsibility to his patient in such a situation must know something about the realities of research and of the use of human subjects. Even in the United States, where there are now mandatory mechanisms for meeting the requirements of informed consent and favorable risk-benefit ratio, and where the situation has certainly improved somewhat in the last 10 years as a result of obligatory peer-review, the medical research profession still has some way to go to conform with its own values and satisfy public demands for ethical treatment.

Our study of a representative sample of 292 medical research institutions which use human subjects showed that 86 per cent of them review all research; 9 per cent still do not conduct such reviews unless there is a formal research proposal; and 4 per cent reported that they review only research proposals which they submit to NIH for financial support. Moreover, of the 350 medical research workers who were employees in two institutions which ostensibly review all research, 9 per cent of the respondents volunteered the information that they were doing research that had not been reviewed by peer-groups for conformity with the required standard. And even where peer-review has been carried out, some of it is not being done under what we roughly define as the most efficacious of conditions. For example, there is a lack of continuous review in many institutions, even though this is required by NIH; there is no face-to-face discussion among the reviewers; and there is no procedure for appeal procedures. The committees in the several institutions were not in touch with one another and hence lost the advantage which is conferred by experience. The medical school peer-review committees were no better than such committees in other research institutions. The biomedical research world is pervaded by an emphasis on autonomy and individualism; these have an essential place but, untempered by other values and emphases, they are costly.

What are some of these costs? One thing is clear. According to the respondents' own estimates of the benefits and risks connected with their own research, there are some investigations still being done which involve more risk than benefit — not only to their present subjects, but even when benefits to possible future patients are considered. We call such investigations "less favorable;" there are others which we classified as "least favorable." Our data make another thing clear about costs. This is that it is the ward and clinic patients, rather than the private patients, who are more likely to be the subjects of these "less" and "least favorable" investigations. This fact is inconsistent with the medical profession's traditional obligation to treat all patients equally.

This difference in the treatment of subjects of different social classes has also been observed in a study at a leading hospital and research center conducted by Professor Bradford Gray of the University of North Carolina.* Inquiring into the extent of "informed consent," Professor Gray discovered that only one out of three clinic patients in a study using a new drug for the induction of labor in childbirth knew, at the time of admission, that they were being used as experimental subjects. While the private patients were a little better off and knew that they were subjects in one out of two cases, half of them too had not been properly informed. Moreover, instead of being told that an "experimental" drug was being tested, they were told only that a "new" drug would be used. Trusting their private physicians, and assuming that "new" implied "better," they were ignorant that they were research subjects either until they were in the labor room or, in some cases, until they were interviewed by Gray after giving birth. All this occurred in an outstanding medical institution where peer-review exists and where the medical principal investigator had encouraged Professor Gray to make his study. These things happen because research workers are ignorant of, or do not take seriously enough, their ethical responsibilities to their human subjects. Science is more important to them than humane therapy.

This conflict between science and therapy seemed to explain some of the findings of our study. We found that those scientists who are less successful in the international scientific community, i.e., whose work was cited by other scientists relatively infrequently, were more likely to have done the "less favorable" studies. Scientists who thought that they were not properly acknowledged by their own research organizations were also more likely to have done the "less favorable" studies. In these cases, scientific ambition tended to prevail over humane concern. Of course, scientific ambition among very distinguished scientists, especially when competition between them is very close and very visible, may also become overpowering. Such cases have been reported in the press, but we encountered none of them in our interviews.

There is no need to conclude from all this that biomedical scientists are "mad" or irresponsible. The tension between science and humane therapy is inherent in biomedical science but, as a result of great scientific progress during the last decades, the biomedical profession has become somewhat negligent of the ethical responsibilities which that progress imposes. More attention to these responsibilities, more concern with them, is now essential if science and humane therapy are to be better accommodated to each other.

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*See Bernard Barber, et al., *Research on Human Subjects*, New York: Russell Sage, 1973.

*Unpublished doctoral dissertation, Dept. of Sociology, Yale University, 1973.

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Cancer Screening Test

A mass screening program in New Jersey that used guaiac stool tests for hemoglobin to detect cancer of the colon and a rectal examination to detect cancer of the rectum discovered five such cancers that were previously unsuspected. The Mercer County Medical Society and The American Cancer Society sponsored a Cancer Detection Day during which 3,450 persons visited examination centers set up for the tests. 2,933 persons underwent the digital rectal exam and all of the visitors were given the guaiac stool test slides with instruction for use. Subsequently 2,642 returned the slides and five unsuspected cancers were eventually detected after more complete medical exams—*JAMA*, 224(13): 1708-1709, 1973.

Disease by Disease Toward National Health Insurance?

Report of a Panel, Institute of Medicine,
National Academy of Sciences, Washington, D.C., June, 1973.

Summary of Recommendations

Recommendation I. We urge the Congress and the Administration to follow closely the implementation of the hemodialysis and kidney transplantation provision of Public Law 92-603, noting the overall costs and impact on medical manpower and facilities.

Recommendation II. We recommend that coverage of discrete categories of catastrophic diseases would be an inappropriate course to follow in the foreseeable future for providing expensive care on a universal eligibility basis.

Recommendation III. The following studies should be considered before additional diseases are considered for coverage.

(a) An assessment of technological advances that may be anticipated in the near future — how much they may cost, and how effective they may be in rehabilitating patients.

(b) An examination of the capacity of the private sector to take up the costs of treatment for certain catastrophic conditions.

(c) Comparison of the costs of various proposals for across-the-board catastrophic national health insurance with those of covering various specific catastrophic diseases on a categorical basis.

(d) A close examination of the problems of determining the most effective allocation of funds for research and for the delivery of health services, and the benefits of both to society.

Panel on
Implications of a Categorical Catastrophic
Disease Approach to National Health Insurance

Members

Herman M. Somers (Chairman)
Professor of Politics and Public Affairs
Princeton University

Carl W. Gottschalk
Professor of Medicine and Physiology
University of North Carolina

Daniel W. Pettengill
Vice President, Group Division
AETNA Life and Casualty

Ernest Saward
Associate Dean for Extramural Affairs
School of Medicine and Dentistry
University of Rochester

William B. Schwartz
Professor and Chairman
Department of Medicine
Tufts University School of Medicine

Bert Seidman, Director
Department of Social Security
AFL-CIO

Implications of a Categorical Catastrophic Disease Approach to National Health Insurance

The Social Security Amendments of 1972 (P.L. 92-603) contain a controversial provision that workers and their dependents with chronic renal disease who would benefit from hemodialysis or kidney transplantation would be deemed disabled for purposes of coverage under Parts A and B of Medicare. This provision is brief, stating that those patients who qualify for end-stage renal treatment will be covered by Medicare after a three-month period on hemodialysis. Unlike Medicare eligibility requirements for disability, this provision would cover nearly everyone — Social Security beneficiaries, those insured under Social Security and dependent family members — afflicted with end-stage renal disease. This provision becomes effective July 1, 1973, with an estimated cost of $135 million for the first year and possibly reaching a level of as much as a billion dollars in federal costs per year by the tenth year. At that time the number of patients brought into the program could equal the death rate of those on the program.

This review panel was appointed in March 1973 by the Institute of Medicine in response to the passage of the Social Security Amendments of 1972. Our charge had been broadly conceived; we were asked to prepare a policy statement on the implications of a disease-by-disease approach to national health insurance. To accomplish this, we first weighed the pros and cons of the renal provision that has been enacted and then arrived at a position on the appropriateness of this approach for coverage of patients afflicted with other serious conditions.

Proponents for passage of this provision have presented strong medical, economic, and political reasons for selecting kidney patients for special consideration at this time. First, the methods of treatment for end-stage renal disease make this particular condition exceptional. From the medical standpoint, hemodialysis and transplantation are viewed as life-extending therapies that have surprisingly good results. The patients that would benefit from such treatment, numbering 8,000 to 10,000 patients per year initially and reaching an estimated stable level of 60,000 patients by the tenth year, could return to active life and be useful citizens. It is, therefore, argued that a nation as richly endowed as ours cannot justify withholding life-extending therapy that can have such beneficial results simply because of the high cost of treatment. Along this line of reasoning is the feeling expressed by many that, although only one particular disease is selected for coverage under Medicare, it is on balance better for society to help one group of patients than none at all.

Second, partially due to the relatively small numbers of patients that would require hemodialysis or transplantation treatment, costs for such coverage, certainly for the first year of implementation of this provision, are insignificant. With a $10 billion a year budget for Medicare, $135 million for the next year to cover these patients is relatively inexpensive. The long-term cost of possibly a billion dollars a year for this treatment may be compared with annual health expenditures in this country that will undoubtedly well exceed $100 billion, although it will represent a far larger portion of the margin that is discretionary.

A third argument for this provision rests on the fact that the Social Security Amendments would otherwise have provided inadequate coverage through the disability provision for people requiring kidney dialysis. There are two reasons for this. First, patients receiving hemodialysis are often able to work and would therefore not be classified as disabled. And second, in order to qualify for this coverage an individual would have to be disabled for at least two and a half years. In a case of end-stage renal disease, the patient, left untreated, would suffer an early death, and thus this requirement would have precluded his ever qualifying for assistance.

In addition to these three arguments for inclusion of a provision for coverage of renal patients, certain political considerations figured prominently. It has been apparent in the number and sponsorship of bills on national health insurance and on broad catastrophic insurance coverage that there is strong sentiment in Congress to approve some form of assistance for patients afflicted with highly expensive diseases. There was general agreement that the Long bill for catastrophic health insurance with a proposed budget of $3.2 billion a year would likely not pass through the Congress in 1972, particularly since the Social Security Amendments were already viewed as expensive. Therefore, Congress was willing to seriously consider supporting a provision for coverage of one condition, in this case end-stage renal disease, which would represent a small portion of the patient population and thus be significantly less expensive.

On the other hand, those who oppose this provision do so on the basis of two arguments. The first argument is that the costs for coverage under this provision are uncontrollable. An important assumption behind its passage was that cost containment could be achieved by organizing nationally the medical community that would be involved with the treatment of patients and instituting standardized reimbursement for specified services. However, it appears that there is a considerably greater range of costs for treatment than was originally contemplated by those urging enactment of the provision. The cost of treatment varies both from institution to institution and by mode of treatment. Estimates of the annual cost of hospital hemodialysis range from $10,000 to $40,000 per patient, and that of transplantation has been frequently cited as high as $45,000. In addition, not only is there a wide range in the fees for therapy, but also in the definition of essential services — staffing ratios of hospital personnel, and the use of home hemodialysis, which would be cheaper than in-center treatment and, to some experts, much more effective. This indicates that it will be important that every effort be extended to develop incentives and mechanisms to control costs.

Augmenting the impact that the lack of standards for fees and services will have on the costs for treating kidney patients is the unpredictable effect of technological advances as to both basic techniques and reductions in mortality rates. Technology in this field is relatively new and is evolving rapidly, spurred on by the high cost of existing treatment, good-quality clinical research, and a significant number of patients who will die if not treated. Major extensions in the life-span of patients on hemodialysis without concomitant achievements in tissue transplantation or dialysis equipment could increase considerably the long-term costs attributable to this provision.

The second important argument against this provision is that it creates an inequitable distribution of medical resources. As discussed earlier, it has been argued that this is a rich nation that can afford to support health-care programs such as that for end-stage renal patients without requiring any severe resource constraints in other areas. On the other hand, it does not have unlimited financial and other resources. Besides the competition of health needs, there are competitions for funds for other socially important activities.

Limitations on funds for health do in fact enter into the decisions of how much money will be placed by the federal government into health care. And, since resource constraints are operative, equity questions emerge, particularly since the categorical approach for assistance to a small and discrete portion of the patient population may drain resources that could be used to assist larger segments of the population. The justice issue centers on the realization that patients with a certain specific disease condition requiring expensive treatment will be provided access to the health-care system, whereas many patients including those with equally serious conditions will be denied that opportunity.

Since this provision has already been enacted into law, the committee does not wish to take any position either for or against the expansion of Medicare to cover patients with end-stage renal disease. However, we do urge the Congress and the Administration to follow closely the administration of this provision, noting the overall costs and impact on medical manpower and facilities.

We are in unanimous agreement that coverage of discrete categories similar in kind to end-stage renal disease would be an inappropriate course to follow in the foreseeable future for providing expensive care to those who are unable to afford it. Among the many reasons for not following this disease-by-disease approach, we feel that two are particularly compelling:

The first of these relates to the effect that coverage of particular designated diseases would have on the total allocation of medical resources and the influence of that allocation upon equity. In addition to funds, other scarce resources such as medical personnel and facilities would be diverted from existing uses for treatment of a wide variety of medical conditions to provision of care for a relatively small number of patients with specially selected diseases. We believe the advantages of providing care for additional special categories of patients would be more than offset by the disadvantages and unfavorable results of such an arbitrary shift of health resources.

The second argument against the disease-by-disease approach to national health insurance is the indeterminate volume of diseases of this kind and the unpredictability of costs associated with these. One of the major inferences that can be drawn from passage of this provision is that additional legislation may be enacted to cover the provision of care for similar kinds of diseases. In fact, a bill has recently been introduced for providing coverage for the treatment of hemophiliacs. If this bill is passed and additional diseases are added, the committee believes that an immense skewing of medical resources may result, along with the creation of incentives for the development of even more technologies that would be highly expensive.

It has already been shown that the number of patients that may qualify for renal disease coverage has been imprecisely determined. Likewise, it can be shown that the number of patients with diseases that could be adequately treated through existing expensive technology is even more highly speculative. This uncertainty is compounded by the fact that at best the highly sophisticated medical technologies only partially restore patients to the normal-functioning state. The trade-offs would be such that money funneled into the development of these technologies would not be available for important areas of research that would get at the causes of these diseases and that would result in medical intervention that both would be less expensive and would avert any long-term disability. One wonders how many billions of dollars the nation would now be spending on iron lungs if research for the cure of polio had not been done.

In support of this position, consider the impact on societal resources if two additional diseases are covered through categorical national health insurance. The first of these, hemophilia, would alone be quite expensive. An estimated 25,500 persons in the United States are being treated for severe and moderate hemophilia, which requires extensive medical care at an average cost of about $6,000 per year. The overall expenditure annually for the federal government would be roughly $150 million.

The cost of treating the second condition, end-stage heart disease, by implanting an artificial heart would be considerably greater by virtue of the size of the patient population. The number of patients that would benefit from an artificial heart would range from 17,000 to 50,000 per year. Although the artificial heart is still in the experimental stages, it has been estimated that the cost of a nuclear-powered heart would be approximately $35,000 for a ten-year treatment period. This cost estimate assumes that the artificial heart functions ideally and creates no medical complications. With this in mind, our calculation brings the annual societal cost for the treatment of 17,000 patients a year to slightly less than $600 million. Taking the high estimate of patients, that is 50,000, the annual cost would be greater than $1,750,000,000.*

These figures are at best conjectural, for the likelihood of complications in this patient population, particularly among those requiring the artificial heart, would be very high. Nonetheless, it is apparent from the cost of both treatments that adding even a few more categories for support raises a concern as to whether or not they would require a disproportionate amount of the federal health budget.

Attachment 1

National Blood Resource Program*

U.S. HEMOPHILIACS UNDER TREATMENT
BY TYPE AND SEVERITY OF DEFICIENCY

Number of Patients

	Total	Factor VIII	Factor IX
Severe	14,421	12,117	2,304
Moderate	11,078	8,180	2,898
Total	25,499	20,297	5,202
Prevalence Rate	25.8	20.5	5.2

Distribution by Type of Severity

	Total	Factor VIII	Factor IX
Severe	56.6	59.7	44.3
Moderate	43.4	40.3	55.7
Total	100.0%	100.0%	100.0%

1971 FAMILY EXPENDITURES FOR HEMOPHILIA TREATMENT

	% Families Reporting Expense	Families Who Had Expenditures Average Spent	Median Spent	Maximum
Blood Products	34	$2400	≈ $900	$41,000
Other Related Care	48	$1000	≈ $630	$24,000
Total	60	$2000	≈ $760	$65,000

The costs now associated with replacement therapy have been brought down to the point where it is estimated that the hemophiliac requiring ongoing treatment may obtain it for an average cost of $6,000 per year.

* From: NHLI's Blood Resource Studies, June 30, 1972.

Attachment 2

POTENTIAL CANDIDATES FOR ARTIFICIAL HEART REPLACEMENT
AMONG PERSONS DYING OF HEART DISEASE
UNITED STATES, 1969

HEART DISEASE DIAGNOSIS	DEATHS: UNITED STATES 1969	POTENTIAL CANDIDATES FOR ARTIFICIAL HEART REPLACEMENT			
		HIGH ESTIMATE*		LOW ESTIMATE	
		%	Number	%	Number
TOTAL	363,999	13.8	50,336	4.6	16,749
1. Ischemic heart disease without hypertension under age 65	151,948	16.4**	24,919	3.8**	5,774
2. Ischemic heart disease without hypertension, Age 65-74	157,494	11.2	17,639	2.6	4,095
3. Ischemic heart disease with hypertension under age 65	20,376	10.0	2,038	10.0	2,038
4. Other hypertensive heart disease under age 65	3,622	10.0	362	10.0	362
5. Rheumatic heart disease under age 65	8,978	25.0	2,245	15.0	1,347
6. Congenital heart disease under age 65	7,884	5.0	394	5.0	394
7. Other heart disease	13,697	20.0	2,739	20.0	2,739

Sources:

1. Deaths from National Center for Health Statistics (unpubl.), "Vital Statistics of U.S., 1969"
2. Note: Estimates derived from data of Framingham and Tecumseh studies.

* High and low estimates are based on implications of secondary disease conditions, development of effective emergency assist devices to allow extended survival in the terminal disease state, and ideal mobilization of best medical procedures now available.

** Estimates from Table 7 of Cardiac Replacement (A Report by Ad Hoc Task Force on Cardiac Replacement, National Heart Institute, 1969.)

We believe that we have enough information to make our conclusion that the categorical catastrophic approach should not be used as a means for providing expensive care to specific patient groups. We do not intend, however, to take a position on what approach, if any, would be appropriate, though we recognize that people could be assisted in paying for expensive diseases in various ways — the categorical approach discussed in this document, an overall catastrophic approach, and through a universal health plan. Under any of these methods for handling medical-care expenses, the availability of resources in health for any one time period will likely not permit us to provide everyone with all the care that is technically possible.

We recognize that some may not agree with our position on the categorical approach and, therefore, recommend that before additional diseases are considered for coverage, the following studies be undertaken:

A. An assessment of technological advances that may be anticipated in the near future — how much they may cost, and how effective they may be in rehabilitating patients. The most appropriate research method should be selected for this assessment, including, possibly, the Delphi method.

B. An examination of the capacity of the private sector to take up the costs of treatment for certain catastrophic conditions. Some information is already available from studies conducted by the Arthur D. Little Company, particularly with regard to renal dialysis. However, with the introduction

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**The figure $1,750,000,000 was arrived at by multiplying $35,000 by 50,000 patients per year, on the assumption that the entire $35,000 is paid the first year on a contract basis for the costs of the present value of implantation and ten years of patient maintenance.*

of the artificial heart into the medical-care system, the impact on the private sector will be of a different order of magnitude. It might be valuable to assess the ability of the private health-insurance system to handle coverage of this condition — the actual increase that would be required in premium rates, the extent of coverage, and the impact of the quality of care.

C. Comparison of the costs of various proposals for across-the-board catastrophic national health insurance with those of covering various specific catastrophic diseases on a categorical basis. This analysis should focus on the cost, the extent of coverage, and the benefits to the society at large — numbers of patients involved, rehabilitation potential, etc. This should not imply endorsement of any type of catastrophic approach as the most appropriate path to national health insurance.

D. A close examination of the problem of determining the most effective allocation of funds for research and for the delivery of health services, and the benefits of both to society. This would include the question of whether or not to support research that will lead to expensive methods of treatment. Such a study should attempt to determine whether or not there are net advantages to be gained by placing more money into research to get at the etiology of disease and perhaps to affect larger portions of the population at significantly less expense, than into further technological development and use of known scientific information.

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Doctors' Bills — The Public's Viewpoint

by Gilbert Cant

In theory, it should be just as easy for a patient or prospective patient to get an estimate of what a doctor will charge for a given procedure as it is to find out what a garageman will want to repair a balky set of brakes. In fact, it is maddeningly difficult in many cases for the patient-consumer to get price information. (This was true even in 1972, the one year in which he was legally entitled to receive it upon request because of Phase II.) And even when he has cleared that hurdle and knows what the doctor plans to charge him, he still does not know whether that is the going rate in the medical marketplace, or a bargain, or a slight case of professional piracy. "There is no way of knowing whether you're being overcharged by your doctor," says Adam Jablonowski, an executive of the Georgia Medical Association. "It's not the same as buying a house or a car."

Each year Americans see doctors more than a billion times — either in the doctors' offices or in hospital rooms. (The number of house calls that doctors make is, by comparison, insignificant.) For the vast majority of patient visits, doctors charge a "fee for service." Although an international checklist enumerates about a thousand different complaints that may send a sufferer to the doctor for relief, by far the commonest complaint of patients is that they have been relieved, indeed — of too much money. But have they? Patients' estimates of what doctors should charge are often unrealistically low; their expectations that doctors are overcharging are just as unrealistically high.

Ten Shekels for a Wound

To strike a balance between these two tendencies, *Money* investigated fees for ten common procedures in different regions of the United States. In every region, for every procedure, there is a range, and some physicians will ask fees outside this range.

While the ranges presented can be only general guides and cannot be absolutes, they give the reader a basis for judging whether he is being treated fairly or is undergoing an operation on the pocketbook.

The total sums involved are impressive if not horrendous. Americans are paying, one way or another, $83 billion a year for health care and services. Of this, about $16 billion goes to physicians, mainly in fee-for-service payments. Almost 60% of this is covered by public programs or insurance of some kind, leaving more than $6.6 billion to come directly out of patients' pockets, over and above whatever they have paid in premiums. This worked out, in fiscal 1972, at $31.40 per capita for 211 million Americans.

Throughout history, physicians have enjoyed the reputation of being the highest paid of all professionals. That they also have a long record of temptation to overcharge is attested by the Code of Hammurabi, graven on stone in Babylon 4,000 years ago: for treating a wound or opening an abscess of the eye, ten shekels of silver if the patient was a gentleman, five for a poor man, two for a servant. There was also a draconian provision for malpractice: if the doctor caused a gentleman to die or lose an eye, the doctor's hands were cut off. If he caused the death of a slave, however, the doctor had to "render value for value."

The autocrat Hammurabi could fix schedules of fees, but doctors in a free society generally resist this process, and in the U.S. they have succeeded almost completely. Fixed-fee schedules are virtually unknown, although fee increases have been governed by the successive phases of the Nixon Administration's anti-inflation program. Even that restraint is bitterly resented by many doctors. Dr. Joseph Boyle, a chest specialist and a former president of the Los Angeles County Medical Association, declares: "It's against the law to fix fees. Setting a minimum or maximum fee schedule would be tantamount to price fixing — just as illegal for doctors as for General Electric and Westinghouse." This might be true of a minimum schedule, but probably not for the maximums. Dr. Wilfred Snodgrass, a Santa Monica general practitioner, thinks the point is moot. He says: "Doctors don't set fees any more — we take what the insurance companies give us."

Charles Johnson, official spokesman for the Los Angeles medical association, insists: "Each doctor is free to set his own fees. What he charges depends largely on his location and his expenses — what he pays for office rent, how much office help he has, what he is paying for malpractice insurance — and

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Gilbert Cant, for many years medicine editor of Time, is now in private journalistic practice as a freelance writer. Gail Eisen assisted with the reporting.

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What doctors earn

Gross income minus expenses equals net income

Specialty	*1968*	*1969*	*1970*
General practice	$55,459	$58,906	$59,578
	—21,788	—24,172	—25,719
	$33,671	$34,734	$33,859
Internal medicine	$56,043	$58,982	$66,498
	—20,491	—21,352	—26,247
	$35,552	$37,630	$40,251
Surgery	$67,358	$74,323	$79,258
	—23,451	—25,475	—28,557
	$43,907	$48,848	$50,701
Obstetrics-gynecology	$61,523	$66,993	$76,482
	—20,951	—23,303	—29,388
	$40,572	$43,690	$47,094
Pediatrics	$50,369	$50,710	$59,456
	—18,842	—18,898	—24,657
	$31,527	$31,812	$34,799
Psychiatry	$42,346	$43,174	$52,928
	—9,016	—9,258	—13,032
	$33,330	$33,916	$39,896
Anesthesiology	$44,047	$48,742	$50,564
	—8,093	—9,095	—11,132
	$35,954	$39,647	$39,432

Source of averages: American Medical Association

particularly on his training and skills. Fees also vary greatly from specialty to specialty, with men like neurosurgeons getting more because they're doing delicate and dangerous procedures." All that, of course, leaves the patient in a never-never land of cloudy uncertainty.

The practice of charging much for a service to the rich, a middling amount for the same service to the middle class and little or nothing to the poor persisted until after World War II. Insurance against doctors' fees then began to spread like a grass fire, and it singed the top of the old flexible fee system (overcharging the rich) and burned out most of the roots (undercharging the poor). While there are remnants of these fee classes, the Robin Hood system is virtually dead. Only a relative few of the rich are charged more than they should be, and this is usually because they actually want to pay more in the mistaken belief that this way they can make sure of getting the best care. At the other end of the scale, most doctors now need to do little charity work, although many will compassionately reduce fees for patients who are financially strapped. The American Medical Association holds that a doctor's fee should be "commensurate with the services rendered and the patient's ability to pay." This is construed as a caution against levying fees involving hardship. The Massachusetts Medical Society, however, resolved forthrightly in 1965 that a patient's income must not be reflected in his surgical bill.

With the extremes of overcharged rich and undercharged poor all but eliminated, what is left is a fat, juicy middle stratum of patients, many if not most of whom have some form of insurance. But except for prepaid group-practice plans, insurance that protects the patient against all doctors' fees is rare indeed. Tens of millions of Americans have policies that require them, as co-insurers, to pay some percentage of the total fee. Others are subject to whatever additional charge over the insured allowance doctors choose to assess. Those without insurance are almost completely at the doctors' mercy.

Until insurance against the costs of medical and surgical care (as distinct from hospitalization) became widespread, doctors' fees were rarely if ever calculated systematically. There is no evidence that fees were ever set on a rational basis, in terms of cost plus or time spent with the patient. Ironically, the most rational fee system now prevailing is used by specialists in the irrational — the psychiatrists, who charge so many dollars per 25-minute session or 50-minute "hour," with relatively few deviations.

The spread of insurance might have been expected to keep fees down, if not actually reduce them, by guaranteeing that the doctor would actually get paid for almost all of his services instead of accumulating a bushel of uncollectible bills. It didn't. On the contrary, Johnson of Los Angeles concedes, insurance tends to increase the costs of medical care because of the additional bookkeeping and paperwork involved. Some physicians demand cash or a check on the barrelhead, refusing even to send a bill, and claim that this keeps their fees down. Since these are mostly high-priced specialists, it's hard to tell. Somewhat more numerous, but still a minority, are the doctors who will have nothing to do with insurance claims.

Insurance might also have been expected to introduce a more rational system of setting fees, but again, it didn't. At first the insurers talked vaguely of "prevailing" fees or charges. Then the semanticists in doctors' organizations, notably the powerful AMA, devised a canny formula: "Usual and customary, or reasonable."

Teachers of English who think that "usual" and "customary" are synonymous can go to the foot of the class, or to the end of the doctor's waiting line. Usual has been narrowed by AMA resolutions to mean what an individual doctor usually charges his patients for a given service. Customary applies the same standard to all doctors of similar training in the same specialty in a particular community. The insurers keep records (called profiles) of what an individual doctor's usual fees and his colleagues' customary fees are. If a claim falls within these classes, it is usually paid without question. If the insurer pays its part of the bill, the insured patient is almost certain to pay the rest without cavil, although he has no idea how the amount he must pay was arrived at or whether it is fair. Even if a claim fails to meet the insurer's criterion of either usual or customary, it may still be adjudged reasonable if there were unusual circumstances — a rare disease such as anthrax, for instance, or unforeseeable difficulties encountered by a surgeon after a patient is laid open on the operating table.

A Skyscraper on Quicksand

"Usual and customary, or reasonable" has been abbreviated to the initials UCR in medical and insurance jargon. UCR is used by Blue Shield, Blue Cross, the large commercial insurance companies, the Federal Employees Health Benefits Program and now by CHAMPUS (Civilian Health and Medical Program of the Uniformed Services), although this last-named arm of the federal government originally set schedules of fixed fees. Medicare uses UCR in effect, although it compounds its own linguistic prescription and irritates the AMA by substituting customary for usual and prevailing for customary. Medicaid plans run by the states use UCRs that are two or more years old.

If UCR is good enough for the federal government and these giant insurers, what's wrong with it? Two things. First, UCR is a skyscraper built on quicksand, composed of nothing but what doctors have traditionally charged, plus increases for this, that and the next thing, with no underlying logic. Second, even if you did decide that UCR was good enough for you or that you had no alternative but to accept it, you would have a hard time finding out what the magic initials mean in your neighborhood.

More than 20 years ago the AMA and other medical societies prepared desk plaques inviting the patient to discuss the fee with the doctor. The invitation referred only to what the doctor was about to charge for a particular service; he was not prepared to hand out a schedule of fees like a menu. Until January 1972, when President Nixon's Phase II rules became effective, you had no right to ask for more information, and no medical organization was likely to give you more. But under Phase II, every doctor was required to maintain a schedule showing his base prices for his principal services, along with any increases made during Phase II, and to make this "available for public inspection." Moreover, he was required to display a prominent sign in his office proclaiming the availability of the schedule.

I know of no doctor who had such schedules printed up to be given to inquiring patients. On the contrary, many doctors put the sign where it was almost obscured, kept the schedule in their middle drawer, produced it reluctantly when asked and held it in their fingers while giving the patient a fleeting glance at it. Some, reportedly, went so far as to insist that a request to see the schedule must be submitted in writing. Phase II as such has been phased out, and although the Cost of Living Council has continued most of its provisions in force for the health care field, the plaque-and-schedule rule has been dropped. The right-to-know rule was in force for just over a year, from Dec. 29, 1971 through Jan. 10, 1973 — and the chances are that you failed to take advantage of it then. A few doctors continue to display the plaque, so a sharp-eyed patient who spots it can still try asking for the schedule. If the services and procedures are listed in incomprehensible medical jargon, the doctor should be willing to translate.

Of course if you are in a highway smashup and are rushed battered, bleeding and only semiconscious to an emergency room, you are in no position to start a discussion about fees. Even if you were fully conscious, this would hardly be the appropriate time to do so. On the other hand, if you break a leg on a ski trail and are whisked to the nearest orthopedist, it should be possible to discuss fees. In all nonemergency situations, it is only fair to the doctor, as well as yourself, to do so.

Until recently many doctors have done nothing to encourage advance discussion of fees, but much of the blame for noncommunication rests on the patients. Most Americans hesitate to raise the matter, some because they think it would make them appear crass, others because they are afraid of giving the impression that they question whether the doctor's services are worth his charges, or that they are actually accusing him of wanting to overcharge. Today the consensus among doctors is that the question should be raised — though some prefer the patient to take the initiative — to obviate future misunderstandings and recriminations.

Once you know the fees, how do you find out whether they are equitable or reasonable in the ordinary sense of that word? It would be easy if one or more of the big insurers, such as Medicare or the Blues, disclosed what they rate as usual, customary or reasonable in different areas. Then you would have a yardstick of sorts, subject to shrinkage in some parts of the country and to stretch in others. It would be a generous yardstick to begin with, because many if not most insurers will pay up to the UCR fees allowed for 90% of doctors in a particular category. Even so, you would have something to go by.

No such schedules are available. Medicare guards its lists of UCR fees almost as jealously as the Pentagon guards war plans. Insurance companies practice commercial secrecy and the Blues follow suit. So does Medicaid in most states. For this seeming paranoia, all the insurers and many doctors offer an identical rationale: physicians and surgeons they say, suffer from an endemic form of "me-tooism." The argument runs: if Doctor A is charging only $10 for an office visit and learns that insurance is paying $12 to Doctor B down the block, Doctor A will instantly react by asking, "Why should I take less?" Before Phase II, Doctor A could have raised his fee to $12 with no one to say him nay. This argument is too simplistic: any doctor can find out in five minutes in the hospital locker room or at his county medical society meeting what his peers are charging. But, say the insurers and some medical society officials, it would be much worse if the top of the UCR range were given wide publicity. Then Doctor A's wife would be nagging him to raise his fees to finance a new mink coat. Stated another way: if there is a ceiling for fees, it tends to become the floor also. The merits of that proposition are debatable, but the fact is that UCR schedules are classified top secret.

The 35-unit Appendectomy

Fortunately, there is a way to get around this secrecy without breaking into an insurance office. There are two principal factors in every doctor's usual fees: 1) the importance or difficulty of the particular service rendered, and 2) the doctor's own valuation of his services. The value of one service in relation to others was a matter of whim or guesswork until 1956, when the California Medical Association finished a heroic task and published a list of 35 medical and about 750 surgical procedures, assigning a number of relative value units to each. Thus a routine office visit to a general practitioner rated one unit, a home visit at night 2.5 units; setting a one-bone simple fracture of the forearm rated ten units, an appendectomy 35. The CMA properly insists that the unit values vary for different areas of practice (medicine, surgery, radiology and so forth) and in subsequent revisions of its Relative Value Studies (RVS) has changed both the units and many proportionate values. But the practical usefulness of the principle was so self-evident that California's RVS has been adopted (usually in a slightly modified version of the 1964 edition) by 40 states and most of the major insurers. It is of some help, at least, to know that setting a simple arm fracture is now worth up to twelve times as much as a routine office visit, and an appendectomy up to 20 times as much.

The CMA has always insisted that its RVS does not set, or even attempt to set, dollar values for its service-unit values. But that is like asking a man to join a poker game while refusing to tell him what the chips are worth. It has long been an open secret that in San Francisco, the CMA's headquarters city, the 1964 unit was worth about $5 to the doctor, so that an office visit (now rated as two units) would cost $10 and an appendectomy $200. In rural Tulare County, Calif., which happens to be the birthplace of tularemia, or "rabbit fever," the unit would be worth only about half as much, and you could get the office visit for $6 or $7. By the time Phase II was proclaimed, a combination of inflation and the doctors' soaring costs of doing business had boosted the price tag per unit to about $10 in New England, the New York, Washington and Chicago areas and urban California. It averages $7 to $8 in most of the rest of the country, though it may be a bit lower in much of the South and in poor areas everywhere. But there are ranges within ranges. In a low-cost rural area the range should be near the bottom of *Money's* spread, or may even dip below; in the gold coast sections of big cities and in their affluent suburbs, the range is near the top and may spill over still higher.

If the procedure that concerns you is not listed here, ask your physician or surgeon to look at his RVS and tell you how that procedure compares in unit value with one of the listed items, such as a routine office visit or an appendectomy. If he wants to charge four times as much for your operation as for an appendectomy, while the unit value is only twice as much, he should at least explain that jump to your satisfaction. If he cannot, or if he is angered by the question, he is not the man for you.

How $2,000 Becomes $3,300

Besides discussing fees with their doctors, patients should make sure in advance what the fee includes. In obstetrics, it should cover everything from the confirmation of pregnancy and a number of predelivery (so-called "pre-natal") checkups through the actual delivery and up to six weeks of follow-up. For a major operation (that is, any surgery involving general anesthesia), make sure how many fees are going to be levied. Your own surgeon tells you his charge, but he needs an anesthesiologist or technician-anesthetist, probably one assistant surgeon or perhaps two. Ethically, he may not include their fees in his billing (to ward off the danger of fee splitting). Anesthesiologists' fees vary widely, depending largely on the duration of the operation, but average up to 25% of your surgeon's. The assistant surgeon usually gets 20% or at most 25%, a second assistant may get 15%. For the non-popular coronary bypass operation, for example, your surgeon may charge $2,000, his first assistant $500, second assistant $300 and anesthesiologist $500. So your surgeon's $2,000 becomes $3,300 before you have paid hospital charges. Also, before you are admitted for surgery, find out to what extent your surgeon's visits to you before the operation and during recovery and convalescence are included. For routine cases, they usually are, but if there are complications, additional fees may be justified.

There is no simple way to know whether, after you have asked all the right questions, your doctor's fee isn't still too high. While doctors are ranked by the Bureau of the Census as the highest-paid professionals (no matter how hard they may try to under-report their incomes), they have a valid answer: they spend many more years than most in costly education and training and seldom start to earn a living before age 30. There is no denying that both physicians' fees and incomes have zoomed in the past decade. There are several reasons for this: simple inflation, an enormous increase in the demand for health care resulting from the revolution in expectations of the population as a whole and especially from the advent of Medicare, and perhaps most significant, the cost of doing business. The salaries that doctors must pay their nurses and secretaries have about doubled in the decade. The cost of malpractice insurance has shot up tenfold or more in many areas. The price of equipment has soared, so that a young man starting a new practice may be justified in charging higher fees than his seniors with equipment that was paid for a dozen years ago. The fact is that doctors' costs of doing business have sometimes gone up faster than their incomes (see the chart at left), and the allowable fee increases of 2.5% a year under Phase II must be justified by at least equal increases in costs. While there has indeed been a marked increase in most doctors' fees in the past few years, it has been nowhere near as great as that in hospital charges, and not much greater than in other areas of consumer spending.

Perhaps the worst aspect of doctors' fees is not that they often seem too high, but that there is so little the patient-consumer can do about it. He can appeal to the doctor to reduce a fee and may get some token relief, though he risks losing an otherwise good doctor. If he feels that the over-charge is truly horrendous, he can appeal to the fee grievance committee of the county medical society. That, of course, is composed entirely of physicians. The layman is apt to assume that they will be strongly biased in favor of their colleagues. Some doctors contend that, on the contrary, they are more critical than laymen would be of over-charging, for fear that it will give the profession a bad reputation. In fact, only about 1% of cases in which a patient complains of being overcharged ever reaches grievance machinery. Of that 1%, about half are decided in favor of the doctor.

Such recourse is painful, at best. Since prevention is better than cure, you should use *Money*'s data for your region as a guide, find out as much as you can about the prevailing fees in your area and discuss your individual fees in advance with your doctor.

PROCEDURE	SOUTH		EAST		MIDWEST		WEST	
	Atlanta	Rural	Boston	Rural	Chicago	Rural	San Francisco	Rural
General practitioner's house call	**$12 to $35**	**$10 to $15**	**$10 to $25**	**$8 to $20**	**$15 to $30**	**$7.35 to $10**	**$11 to $25**	**$12 to $16**
Pediatric office visit	**$6 to $15**	**$6 to $15**	**$4 to $15**	**$6 to $7.35**	**$10 to $15**	**$7.50 to $10**	**$10 to $20**	**$6 to $8**
Psychiatric office visit	**$25 to $50**	**$20 to $45**	**$25 to $49**	**$25 to $40**	**$35 to $40**	**$35 to $40**	**$25 to $50**	**$25 to $40**
Ophthalmologist's routine exam	**$25 to $30**	**$20 to $25**	**$16.50 to $35**	**$15 to $20**	**$25 to $35**	**$15 to $25**	**$30 to $35**	**$20 to $30**
Single hernia repair	**$200 to $350**	**$175 to $350**	**$125 to $235**	**$150 to $225**	**$300 to $325**	**$200 to $215**	**$250 to $350**	**$250 to $300**
Tonsillectomy and adenoidectomy	**$150 to $250**	**$75 to $150**	**$125 to $150**	**$50 to $75**	**$100 to $125**	**$75 to $105**	**$150 to $160**	**$110 to $130**
Obstetrical, including prenatal, care	**$250 to $375**	**$150 to $300**	**$300 to $500**	**$175 to $225**	**$250 to $300**	**$205 to $250**	**$275 to $500**	**$250 to $350**
Dilatation and curettage	**$125 to $200**	**$75 to $175**	**$100 to $110**	**$60 to $75**	**$125 to $150**	**$75 to $119**	**$125 to $175**	**$110 to $150**
Setting simple leg fracture	**$125 to $150**	**$75 to $100**	**$225 to $300**	**$125 to $225**	**$200 to $300**	**$200 to $250**	**$250 to $300**	**$150 to $200**
Upper gastrointestinal x-ray exam	**$35 to $40**	**$25 to $35**	**$40 to $50**	**$40 to $50**	**$35 to $40**	**$22.45 to $25**	**$50 to $60**	**$35 to $50**

Medical fees are admittedly high, but how high is high — or too high? Fees vary greatly, not only between different regions of the U.S. but also within cities and between urban and rural areas. *Money* reporters ascertained the ranges of fees for specific procedures in four large cities and various rural communities typical of their regions. One reason the ranges are so wide is that doctors use different combinations of examinations and tests for the same procedure.

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Vitamin D	250 U. S. P. Units
Thiamine Mononitrate	2.5 mg.
Riboflavin	2.5 mg.
Ascorbic Acid	25.0 mg.
Folic Acid	0.1 mg.
Vitamin B-12	1.5 mcg.
Methionine	12 mg.
Choline Bitartrate	15 mg.
Inositol	10 mg.
Calcium Pantothenate	2.5 mg.
Pyridoxine	0.25 mg.
Copper (from Copper Sulfate)	0.25 mg.
Zinc (from Zinc Oxide)	0.25 mg.
Iodine (from Potassium Iodide)	0.075 mg.
Calcium (from Dicalcium Phosphate)	72.5 mg.
Phosphorus (from Dicalcium Phosphate)	55 mg.
Potassium (from Potassium Sulfate)	2.5 mg.
Manganese (from Manganese Sulfate)	0.5 mg.
Magnesium (from Magnesium Sulfate)	0.5 mg.

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SUMMARY OF PROCEEDINGS
HOUSE OF DELEGATES — SEMI-ANNUAL MEETING
New Haven, Connecticut — December 13, 1973

Reports

The House of Delegates receive reports or addresses from the following: The President, the Council, the AMA Delegates and the Board of Directors of COMPAC. Recommendations made in these reports and addresses were referred to reference committees for hearings.

Principal Actions Taken

Continuing the procedure established several years ago, all items of business coming before the House for consideration were referred to, heard by, and reported on by Reference Committees. Actions taken on the reports of the four Reference Committees were as follows:

Reports of Reference Committee No. 1

(a) **Authorization to Form CSMS Section on Psychiatry:** It was VOTED to accept the recommendation of the Reference Committee that authorization be granted for the formation of a Section on Psychiatry of the CSMS Scientific Assembly, provided that the proposed Section bylaws be amended to assure that such amendments "are not in conflict with the bylaws of the Society."

(b) **Evaluation of CSMS Committees, Representatives and Advisors:** The House received a comprehensive subject evaluation which had been initiated by the Council and carried out by the Subcommittee on Administrative Organization and Planning. In brief, the report recommended that minor changes (limits of membership, revised duties, etc.) be made in a number of instances, that major changes (merger of several committees) be made in others and that a few be abolished because of inactivity and/or lack of current purpose.

It was VOTED to accept the recommendation of the Reference Committee that the report be approved with the following amendments:

Committee on Peer Review Systems (formerly PROs, Foundations and HMOs): Change authorized membership strength from "not more than 12" to "at least 12" and provide that there be one member from each County Association designated by the Association.

Committee on Continuing Medical Education: Provide that the chairman of the Connecticut Medical Examining Board, by title, be a member of the Committee on CME.

(c) **Committee on Statewide Medical Planning:** It was VOTED to accept the recommendation of the Reference Committee that a two-part progress report of the Committee on SWP be accepted for filing (as information). One part dealt with the general activities of the Committee during the past 6-8 months; the other described the status and projected future of the Connecticut Ambulatory Care Study which is being made under the auspices of the Society.

(d) **Fluoridation of Public Water Supplies:** The House was apprised that efforts are being launched to seek repeal or major amendment of the prevailing statutes which require the fluoridation of public water supplies serving populations of 20,000 or more. Without dissent, it was voted to accept the recommendation of the Reference Committee that a subject resolution be adopted as follows:

RESOLVED: That the House of Delegates of the Connecticut State Medical Society reaffirm its position of support for the fluoridation of public water supplies in the State of Connecticut and recommend its continuance; and be it further

RESOLVED: That this action be brought to attention of the members of the State Legislature, the members of the General Assembly's Committee on Public Health and Safety, and the members of the CSMS Committee on State Legislation with instruction to work in support of the action; and be it further

RESOLVED: That the CSMS Committee on Public Health be instructed to contact the State Health Department to obtain a comprehensive report on the experience with fluoridation of public water supplies in Connecticut since the present statute was enacted (1963) and implemented (1965).

(e) **Unauthorized Statements re CSMS Policies:** During the course of the discussion of the resolution on fluoridation, allegations were made that physicians identifying themselves as members of the Society at hearings being held on fluoridation throughout the state might be implying that their views on the subject were those of the Society. The Reference Committee recommended that this matter be referred to the Judicial Committee for study and report (re possible disciplinary proceedings), but the House voted to refer it to the Council for further consideration.

Reports of Reference Committee No. 2

(a) **Proposed Amendment re Name of the Journal:** A subject amendment to the Bylaws, introduced at the annual meeting in April, was removed from the table and heard by the Reference Committee. The amendment proposed to change the name of the Journal from "Connecticut Medicine" to "The Connecticut State Medical Journal." A substitute amendment, introduced by the Council, was also heard. The Council's substitute recommended that the name of the publication be "The Journal of the Connecticut State Medical Society."

It was voted to accept the recommendation of the Committee that "Connecticut Medicine" be retained as the official name of the Journal, with subidentification as "The Journal of the Connecticut State Medical Society" to appear on the front cover.

(b) **Venereal Diseases Education and Control:** It was voted to accept the recommendation of the Reference Committee that the Ad Hoc Committee on VD Education and Control (established by the House in December, 1972) be abolished and replaced by a standing committee of the House of Delegates. The duties of the new Committee on VD Education and Control will be to continue the liaison functions with other interested agencies of the former Ad Hoc Committee and to develop for implementation a number of programs recommended by the Ad Hoc Committee and approved by the Council.

(c) **Professional Standards Review Organization(s):** It was voted to accept the recommendation of the Reference Committee that the following reports be accepted for filing: Progress Report of the CSMS Committee on PROs, Foundations and HMOs; Report on the AMA Conference of PSRO, Anaheim, California, 12/1/73 (James H. Root, Jr., Waterbury); Amended Report EE of the AMA Board of Trustees, adopted by the AMA House of Delegates, 12/5/73.

It was further voted to accept the recommendation of the Reference Committee, with minor amendment, that a policy statement on PSRO be approved as follows:

(1) That CSMS should provide a role of leadership in the implementation of the PSRO program, with particular emphasis on quality of care, to assure that the best interests of the public and the medical profession are preserved.

(2) That the Committee on Peer Review Systems (formerly on PROs, Foundations and HMOs) be instructed to continue its planning efforts in line with the CSMS leadership role (indicated in (1) above), including its activities in developing an "institute" (medical information system).

(3) That CSMS support the principles adopted by the AMA House of Delegates on 12/5/73, as defined in the amended Report EE of the AMA Board of Trustees:

That the medical profession remains firmly committed to the principle of peer review, under professional direction, and

That medical society programs of proven effectiveness should not be dismantled by PSRO implementation, and

That the Association suggests that each hospital medical staff, working with the local medical society, continue to develop its own peer review, based upon principles of sound medical practice and documentable objective criteria, so as to certify that the objective review of quality and utilization does take place; to make these review procedures sufficiently strong as to be unassailable by any outside party or parties; and that the local and state medical societies take all legal steps to resist the intrusion of any third party into the practice of medicine, and

That this House of Delegates, as individual physicians and through the Board of Trustees and its Council on Legislation, work to inform the public and legislators as to the potential deleterious effects of this law on the quality, confidentiality and cost of medical care; and the hope that the Congress in their wisdom will respond by either repeal, modification, or interpretation of rules which will protect the public.

(4) That CSMS continue to work for improvements in the PSRO law through modification and constructive amendments.

Awards for CSMS Service

Receiving awards from Dr. Sidney L. Cramer in recognition for past services to the society were:

Frederick C. Weber, Jr., M.D.,
Greenwich Councilor-at-Large 1972-73 CSMS

Guy W. Van Syckle, M.D.,
Danbury Associate Councilor 1970-73 FCMA

Isadore H. Friedberg, M.D.,
Newington Associate Councilor 1968-73 HCMA

Clarence W. Harwood, M.D.,
Middletown Councilor 1969-73 MCMA

Louis O. Labella, M.D.,
Middletown Associate Councilor 1970-73 MCMA

Clifford E. Wilson, M.D.,
Norwich Associate Councilor 1965-69 and Councilor 1969-73 NLCMA

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Reports of Reference Committee No. 3

(a) **CSMS Financial Aid Fund for Medical Students:** It was voted to accept the report of the Reference Committee that the subject Financial Aid be continued in 1974 and that the grants to the UConn and Yale University medical schools be increased from $3,000 each in 1973 to $4,000 each in 1974, and that provision for same be made in the budget for 1974.

(b) **Loan to the New Haven County Foundation for Medical Care:** It was voted to accept a recommendation of the Reference Committee that an interest-free loan of $5,000, drawn from the Society's reserve funds, be made to the New Haven County Foundation for Medical Care, such loan to be repaid to the Society when feasible.

(c) **CSMS Budget for 1974:** It was voted to accept a recommendation of the Reference Committee that the budget for 1974, as prepared by the Fiscal Subcommittee and submitted by the Council, be approved as presented, and that the CSMS annual membership dues be set at $75 in 1974.

(d) **AMA Membership Dues Billing:** It was voted to accept the report of the Reference Committee that a subject resolution be adopted as follows.

RESOLVED: That billing statements for annual membership dues to members of CSMS and the County Associations include an item for AMA dues, and that the details of implementing the foregoing be left to staff with the advice of the Council if needed.

Reports of Reference Committee No. 4

(a) **Resolutions in Support of Blue Shield-Blue Cross Merger:** The Reference Committee reported on two different resolutions having a common goal; i.e., proposing that the Society support efforts to effect a merger between Connecticut Medical Service and Connecticut Blue Cross. Following lengthy discussion of the report and recommendation of the Reference Committee, the House voted to table the action on this item of business.

(b) **Resolution re Qualifications of Health Commissioner:** It was voted to accept the report of the Reference Committee that a subject resolution *not* be adopted. The resolution was related to recent actions taken by the Council on the subject question, and advocated that no further actions be taken by the Society regarding the professional qualifications of the Commissioner of Health designate, whose appointment is awaiting confirmation by the General Assembly.

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(c) **Resolution re Health Care During Energy Crisis:** It was voted to accept the recommendation of the Reference Committee that a subject resolution be adopted as follows:

RESOLVED: That the House of Delegates of the Connecticut State Medical Society urge all members of the Society to be fully cooperative and willing to participate in the planning and decision-making which would provide for the conservation of energy and, at the same time, not jeopardize the health of the people of Connecticut; and be it further

RESOLVED: That, through the office of the Governor, the state and federal agencies charged with the responsibility for implementing measures to conserve energy be informed of this action of the House of Delegates.

Other Business

(a) **Proposed Amendment to the Bylaws:** Introduced by the Council, and placed on the table until the next meeting of the House, was a proposed amendment to the Bylaws concerning the prescription of dues for certain new members of the Society. The proposal follows.

PURPOSE: To reduce CSMS membership dues for physicians becoming members in the last half of a fiscal year (less than six months of membership).

AMENDMENT

ARTICLE XII — DUES — Section 1. Prescription (Delete underlined word and add word in capitals.)

Annual dues for Active Members shall be prescribed for the ensuing calendar year in an amount recommended by the Council and approved by the House of Delegates and shall be an equal per capita assessment upon each Active Member except that physicians who become Active Members during the latter half of a fiscal year will be assessed one-half QUARTER of the annual dues for that fiscal year.

(b) **Accreditation of Greenwich Hospital for CME Programs:** At the direction of the House of Delegates in 1972, the Committee on Continuing Medical Education sought from, and was granted by, the AMA Council on Medical Education recognition as the accrediting agency for hospital CME programs for physicians in Connecticut. The Committee started making on-site surveys of hospital programs early in 1973, and, as of December, has completed five such surveys. The Greenwich Hospital was the first to have its programs fully accredited for a three-year period and, in recognition thereof, an AMA Certificate of Accreditation was presented to, and accepted by, a representative of that institution, Timothy F. Nolan, Greenwich.

(c) **AMA Award for "Project U.S.A." Service:** Acting on behalf of the American Medical Association, the President of the Society presented to Frederick B. Agee, Jr., Wethersfield, a "Project U.S.A." plaque in recognition of Dr. Agee's service to the people of Curtis, Nebraska, which had been certified as an area of critical medical need.

(d) **Bestowal of Honorary Degree in Medicine:** At the April, 1973 meeting of the House of Delegates, by unanimous vote, the granting of an Honorary Degree in Medicine to Ira V. Hiscock, M.P.H., Sc.D., New Haven, was approved. The Honorary Degree was bestowed upon Dr. Hiscock at the conclusion of the mid-day luncheon at this semi-annual meeting.

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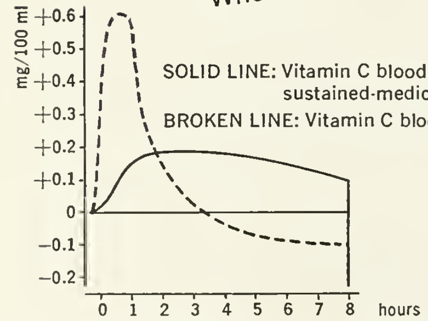

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[1] Riccitelli, M. L.: Vitamin C Therapy in Geriatric Practice, J. Amer. Geriatrics Soc. 20: 34, 1972.

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Connecticut Medicine

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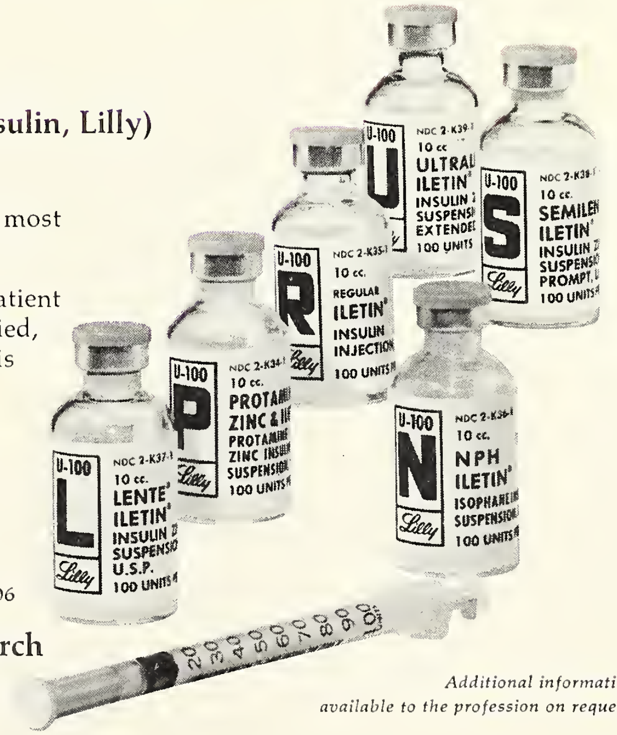
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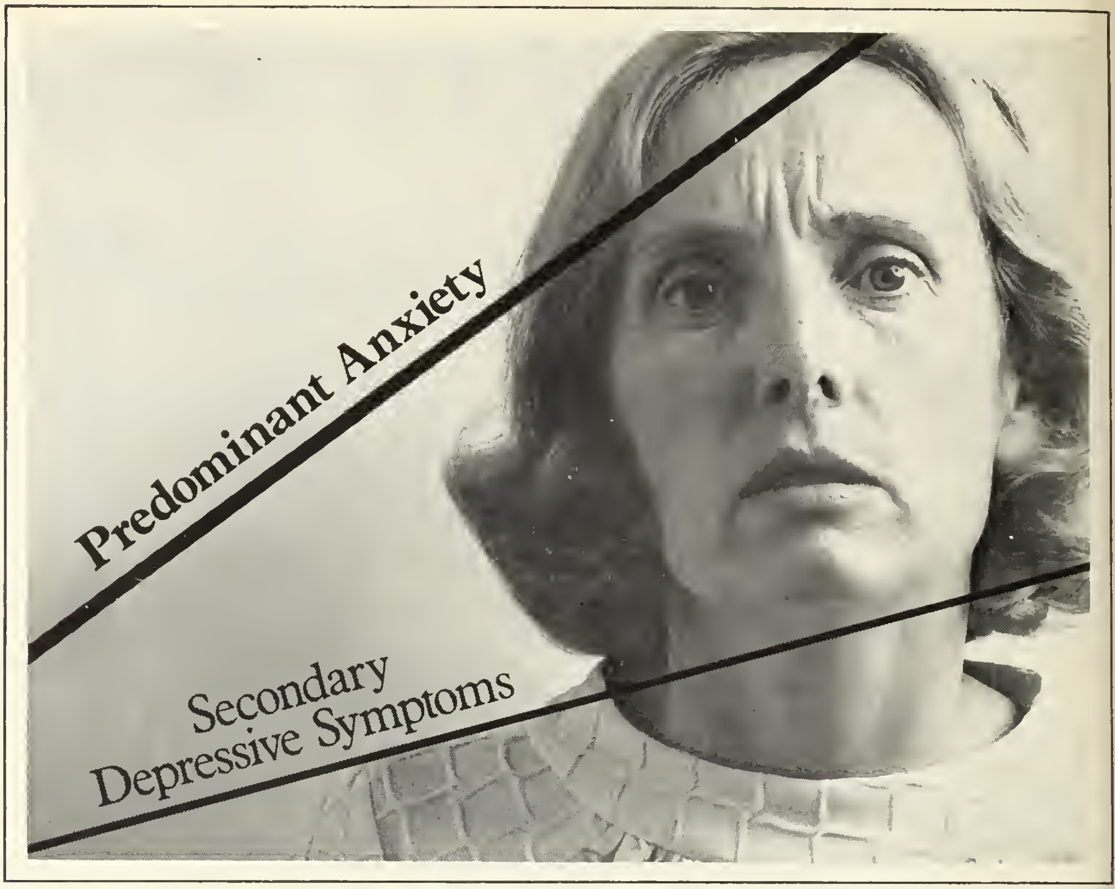

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Nerve Entrapment Syndromes

Leonard Gordon, M.B., Bch. and G. D. Ritland, M.D.

Historical

The first nerve entrapment was described by Ramsey Hunt in 1908, when he drew attention to compression of the median and ulnar nerves as a cause of paralysis of the intrinsic muscles of the hand.

Only in the past 15 years has interest in these syndromes increased, since the description of the carpal tunnel syndrome (Table I).

TABLE I

Syndrome	*First Described*
Carpal Tunnel	Waltman 1941 Zachery 1954
Ulnar Nerve in Ulnar Groove	Asborne 1957
Post Tibial in Tarsal Tunnel	Keck 1962 Thomson and Kopell 1963

Definition

A point of entrapment occurs where the anatomic configuration predisposes to compression of a nerve. Such as where it passes through a fibro-osseous tunnel or is impinged on by a band of fascia or a ridge of bone. The soft nerve trunk substance becomes compressed at these points because the diameter allowed for the passage of the nerve may decrease or the nerve may swell from edema or other pathological processes.

Etiology

The causes of nerve compression are varied. Trauma, either one episode or repeated minor traumas, or any pathological process resulting in local inflammation or tissue edema in an area where there is a predisposition to entrapment may result in nerve compression. Callous from healing factors or fibrous tissue following surgery or trauma may also trap a nerve. Ganglia and cysts are often described as causes of compression,[2, 8, 9] as are metabolic changes leading to generalized fluid changes such as myxedema, pregnancy, menopause and diabetes.

Clinical

The nerves affected are usually mixed nerves. Predominantly cutaneous sensory mediating nerves may be affected and give well localized paresthesia. Predominantly motor mediating muscle impulses and deep connective tissue sensation may be affected. This results in poorly localized, deep pain from muscles, ligaments and joints. Examples of motor nerve entrapments are the suprascapular nerve, posterior interosseous branch of the radial nerve, and the deep branch of the ulnar nerve.

Sensory alteration usually consists of pain but paresthesia may occur. This involvement is in a peripheral nerve distribution and is distal to the entrapment although pain may be referred to a proximal site. There is often tenderness at the entrapment point, where pressure of percussion may reproduce the peripheral pain (neuroma sign). The nerve trunk is often tender both proximal and distal to the entrapment, (Valleix phenomenon). A prominent feature of the sensory component is rest pain which characteristically becomes worse at night, or during periods of immobilization.

Motor involvement results in weakness and atrophy of muscles. Pain is usually the outstanding feature. Weakness may be noted secondarily. Brooks[1] states that if compression is mild then motor fibers alone are involved. With more severe and prolonged compression there will also be pain.

The importance of these neuropathies lies in their differentiation from nerve root compression since entrapments of peripheral nerves can be managed more definitively with surgical release if they are diagnosed early.

Once the entrapping pressure is removed by surgically releasing the constriction or transposing the nerve out of the area, regeneration of the nerve will proceed. Recovery of nerve function tarries longer in older patients and in patients who have had a longer compression period.

Electromyographic measurement and measurement of nerve conduction time as assessment of muscle denervation may support a clinical diagnosis.

DR. LEONARD GORDON, Department of Surgery, Stanford University School of Medicine, Stanford, California.

DR. G. D. RITLAND, Clinical Assistant Professor, Division of Orthopaedic Surgery and Hand Surgery Service, University of Connecticut Health Center, Farmington, Connecticut.

Anatomy of Entrapments

Upper Limb and Shoulder — the Thoracic Outlet Syndrome

The subclavian vein, subclavian artery and lower cord of the brachial plexus are in close opposition to the first rib as they traverse the axilla and enter the arm. Compression of the nerves during the course through the scalene triangle, costo-clavicular space, and pectoralis minor space result in the thoracic outlet syndrome (costo clavicular, scalenus anticus or cervico brachial compression syndrome). The anterior and middle scalene muscles insert on the first rib. Fibrosis and thickening due to extension-flexion neck injuries, tumors or inflammation will narrow the space available for the neurovascular structures. This produces narrowing of the subclavian artery and vein and pressure on the brachial plexus between these muscles and the rib. Bony irregularities of the first rib or overlying clavicle produced by fractures narrow the costo clavicular space. A cervical rib can also constrict the scalene triangle. Poor posture with sagging shoulders may stretch the neurovascular structures over the first rib causing compression.

The clinical features of neurological compression follow the distribution of the ulnar nerve (C^8,T^1), or, less commonly, the median nerve. Arterial compression results in coldness and pallor more marked on hyper-abduction and venous compromise results in swelling of the hand and cyanosis.

Suprascapular Nerve

The suprascapular nerve is derived from the upper trunk of the brachial plexus. It then passes posteriorly to go through the suprascapular notch which is roofed over by a fibrous band, called the transverse scapular ligament. With the shoulder pulled forwards and the arm adducted across the body the nerve may become compressed.[4] This is a purely motor nerve to the supra and infra-spinatus muscles, as well as the shoulder and acromioclavicular joints.

Median Nerve in the Arm

The median nerve traverses anteriorly from the medial side of the forearm under the flexor origin.

Occasionally a supra-condyle process; the fibrobony spiral just above the medial epicondyle of the humerus will be large and the ligaments of the epicondyle (ligament of Struthers) will be hypertrophied. This forms a rigid tunnel to compress just the median nerve. The brachial artery is not involved since it is superficial to the ligament.

Weakness of the finger and thumb flexors and weakness of pronation will differentiate this from carpal tunnel syndrome.

Ulnar Nerve at the Elbow

The exposed portion of the ulnar nerve at the posterior aspect of the medial epicondyle of the humerus is well known as a site for direct acute trauma or chronic irritation, e.g. following periods of prolonged recumbency.

The nerve may become entrapped here where it is held in its bony groove by thick fascial covering (Fig. 1). This occurs especially with a valgus deformity after fracture or dislocation.

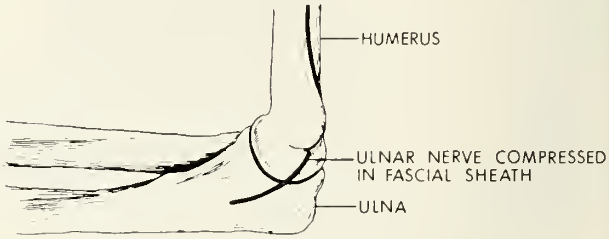

Fig. 1

The Ulnar nerve is subject to compression in the bony groove roofed by thick fascia.

Neurolysis is adequate to relieve most entrapments but at this site the nerve can be transplanted anteriorly to gain length and relieve tension on the nerve around the ulnar groove.

Median Nerve in the Forearm

Median nerve entrapment may occur as it passes from the elbow between the two heads of Pronator Teres and then dips under the two origins of the sublimis. This is known as the Pronator Syndrome. This compression must be differentiated from the Carpal Tunnel Syndrome. It results in more severe abnormality than the Carpal Tunnel Syndrome, as

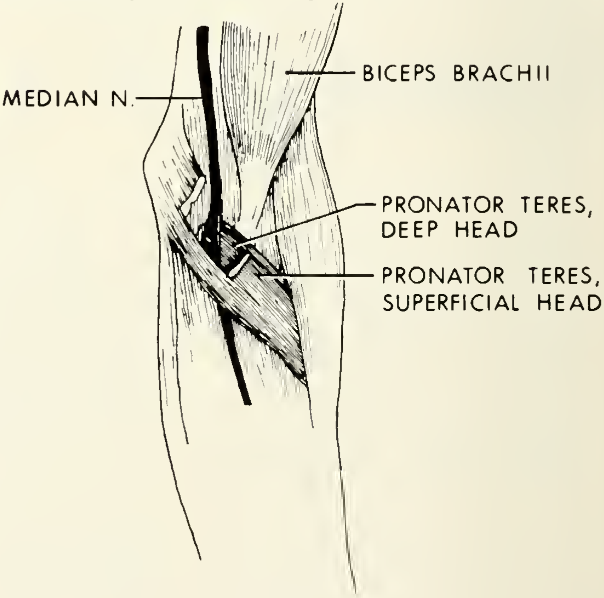

Fig. 2

The median nerve is compressed by the two heads of the pronator teres or the arch of the origin of the sublimis.

the long flexors of the lateral 3 digits and the short flexors of all, are weakened. In addition to the tenderness over the Pronator muscle a point of tenderness in the thenar eminence has been described by Seyfforth.[5] The anatomical basis for the compression is either hypertrophy of the Pronator muscle or an abnormally dense aponeurotic edge of the sublimis bridge (Fig. 2).

Anterior Interosseous Nerve in the Forearm[4]

This nerve arises from the median nerve 2-8 cm. below the elbow. It runs between the Flexor Digitorum Profundus, the Flexor Pollicis Longus and radius and then on the interosseous membrane. Entrapment of this nerve, which is rare, (Called the Kiloh-Nevin Syndrome) causes weakness of the Flexor Digitorum Profundus, Flexor Pollicis Longus and Pronator Quadratus. The cause and exact site of this entrapment is uncertain,[7] (Fig. 3).

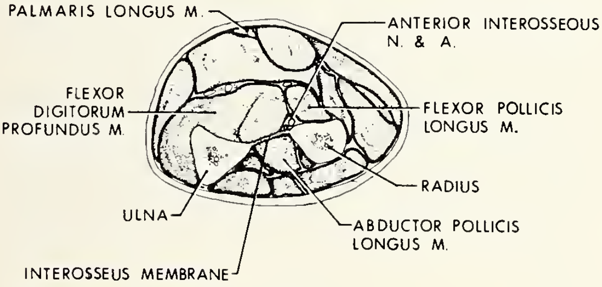
PALMARIS LONGUS M.
ANTERIOR INTEROSSEOUS N. & A.
FLEXOR DIGITORUM PROFUNDUS M.
FLEXOR POLLICIS LONGUS M.
RADIUS
ULNA
ABDUCTOR POLLICIS LONGUS M.
INTEROSSEUS MEMBRANE

Fig. 3

The anterior interosseous nerve is closely placed to the interosseous membrane. The exact site of compression is unclear.

Posterior Interosseous Nerve in the Forearm

The radial nerve splits into several branches under the brachio-radialis muscle. The muscular branch (purely motor), the posterior interosseous nerve, passes under the aponeurosis of extensor carpi radialis brevis and from there through the two heads of the supinator muscle to innervate the hand extensors. The inelastic fibrous edges of the extensor carpi radialis brevis and the supinator may cause entrapment (Fig. 4). Weakness of thumb and finger extensors is the most constant finding.

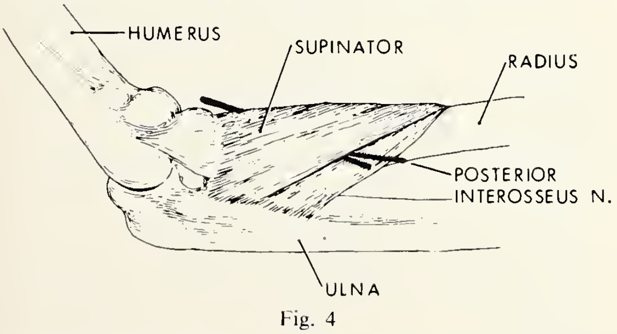

Fig. 4

The posterior interosseous nerve is compressed as it passes through the two parts of the supinator.

Kopell and Thomson[4] state that this entrapment which occurs when an arm is pronated and elbow extended causes the syndrome known as Tennis Elbow.

Median Nerve at the Wrist

The median nerve passes directly under the transverse carpal ligament at the midpoint of the volar wrist skin crease, lying superficial to the 9 flexor tendons of the digits. (Fig. 5). In this course through the carpal tunnel the nerve is vulnerable to compression by any condition that increases the volume of the structures within the carpal tunnel. Among the many causes are swelling of the thick redundant synovial sheaths of the flexor tendons. Rheumatoid Arthritis, myxedema, a ganglion trauma with resulting local edema should all be considered. Idiopathic thickening of the transverse carpal ligament however is statistically the most common finding in the surgically released carpal tunnels.

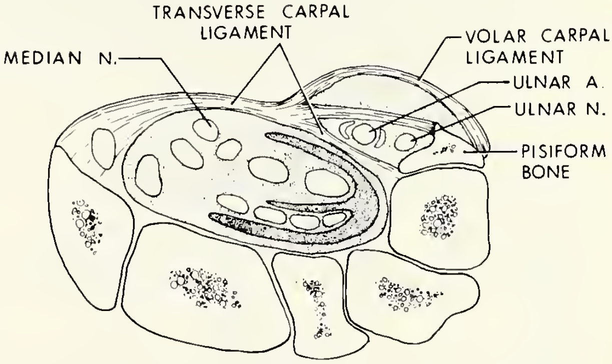

Fig. 5

Compression of the median nerve in its course through the carpal tunnel. The ulnar nerve at the wrist is contained in a semi rigid tunnel (Canal of Guyon).

Compression of the median nerve at this point results in pain, (often worse at night), or when the wrist is flexed, hyposthaesia and paresthesia over the volar surface of the thumb, index and long fingers. Weakness and wasting of the abductor pollicis brevis, opponens pollicis are seen in 67% of cases.[15] The patient will complain that he can not pick up small objects. A positive Tinel sign is found in 73% of cases[15] and the wrist flexion test, (making a tight fist and then flexing the wrist), will reproduce symptoms in 60-90 seconds and aid in clinical diagnosis. Prolonged nerve conduction time across the wrist is a sensitive index of the nerve compression.

Ulnar Nerve at the Wrist

The ulnar nerve in the wrist is contained in a semi-rigid tunnel (Canal of Guyon) which is triangular in cross section.[8] It is formed by the volar carpal ligament anteriorly, the transverse carpal ligament posteriorly and the pisiform bone and flexor carpi ulnaris tendon medially (Fig. 5).

Close to the Pisiform bone the nerve bifurcates into a deep muscular branch and superficial cutaneous branches. The deep branch passes through a foramen in the adductor digiti quinti on its way to innervate the intrinsic muscles of the hand.

There are, therefore, two points of danger.[4] Firstly, mechanical trauma to the main nerve trunk and secondly, entrapment as the muscular branch passes through the muscle. These two points are near each other and inflammation affecting the deep branch can easily extend to involve the main trunk. Pain from the deep muscular branch is poorly localized and may involve the whole hand. The main trunk will also have typical sensory changes.

Digital Nerves in Fingers

Vater discovered the lamellar corpuscle in 1741, and Pacini described its structure over 100 years later.

This pacinian corpuscle is a sensory and organ, probably a pressor receptor governing local blood flow.[11]

These corpuscles enclose the termination of a nerve fiber and have a lamellar structure of concentrically arranged connective tissue around an acellular space in which the nerve fiber is contained. They are about 2 mm. in diameter. They are found in the palm, sole and near joints.[11]

Two cases are described in the literature where these corpuscles were contained within the epineurium of the involved digital nerve just proximal to the metacarpo-phalangeal joint. When at operation the corpuscles were removed (and confirmed histologically), the symptoms were relieved, and this led Zweig et al to postulate compression. The corpuscle is normally near but not within the epineurium.

Lower Limb and Pelvis — Lateral Cutaneous Nerve of the Thigh

This nerve which is derived from L2, L3 may be compressed as it passes into the thigh medial to the anterior superior iliac spine and beneath the inguinal ligament (Fig. 6). This syndrome which is characterized by pain and paresthesia down the lateral aspect of the thigh relieved by hip flexion is known as Meralgia paresthetica (Meros = thigh, Algos = Pain). It is often associated with tight clothing which increases the pressure on the nerve over the iliac area, i.e. tight girdles or the tight belts with heavy tools attached which telephone linemen wear.

Ileo Inguinal Entrapment Syndrome[12]

The ileo inguinal nerve derived from T12-L1 is both sensory and motor. It extends anteriorly around the posterior wall of the abdomen immediately beneath the transversus abdominis muscle.

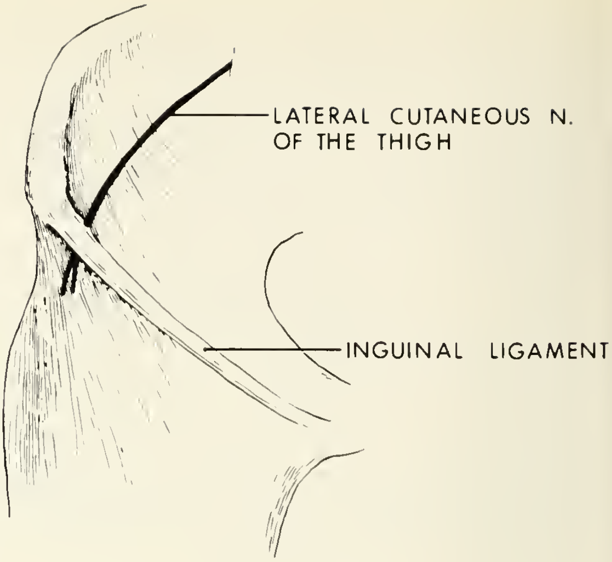

Fig. 6

The lateral cutaneous nerve of the thigh is vulnerable to compression by the inguinal ligament from pressure from tight clothing such as a girdle or belt.

At a point near the anterior superior iliac spine it passes externally through the transversus muscle to run between the transversus abdominis and the internal oblique muscles. The nerve finally passes through the internal oblique muscle to lie beneath the external oblique and it then enters the inguinal canal.

Motor involvement affects the lower portion of the transversus abdominis, internal and external oblique muscles, and results in a bulge just above the inguinal ligament. Pain is found in the upper medial thigh and scrotum or labia.

The point of pressure occurs either as the nerve passes through the transversus abdominis muscle or as it transverses the internal oblique muscle. It may arise de novo or follow sudden physical exertion or injury. Ileo inguinal nerve pain following a herniorrhaphy occurs due to entrapment in scar tissue at a more distal site.

Sciatic Nerve at the Pelvic Outlet

After its origin from the sacral plexus (L4-S2) the sciatic nerve leaves the pelvis through the greater sciatic notch. This relationship may be altered by alterations in the spine, pelvis, and femur, e.g. an increase in lordosis with compensatory hip flexion will draw the nerve trunk more tightly against the rim of the bone (Fig. 7).

The diagnosis of sciatic nerve entrapment is difficult because of the similar clinical picture of damage to L4-5 neural roots and the common finding of sciatic trunk tenderness distal to a radiculopathy. For the diagnosis of sciatic nerve entrapment there should be:

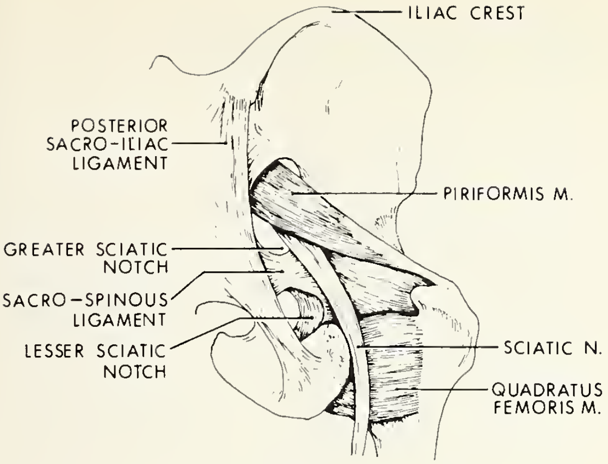

Fig. 7

Compression of the sciatic nerve as it passes through the sciatic notch, is an uncommon cause of leg and hip pain.

1) Local tenderness over the proximal portion of the nerve. (Difficult because of the depth of the nerve).

2) Increased pain during internal rotation of the hip after lifting the straight leg to just short of discomfort.

3) Sparing of the glutei as the gluteal nerves are proximal to the entrapment, unlike a radiculopathy.

Obturator Nerve

The obturator nerve leaves the pelvis via the obturator canal. This is an osseofibrous tunnel roofed by the obturator groove of the pubic bone and whose floor is formed by the obturator muscles, separated by the inelastic obturator membrane (Fig. 8). Inflammation in this canal (as in osteitis pubis[3]) or an obturator hernia causes pain over the medial thigh and knee as well as a portion of the hip joint, and weakens the thigh adductor muscles.

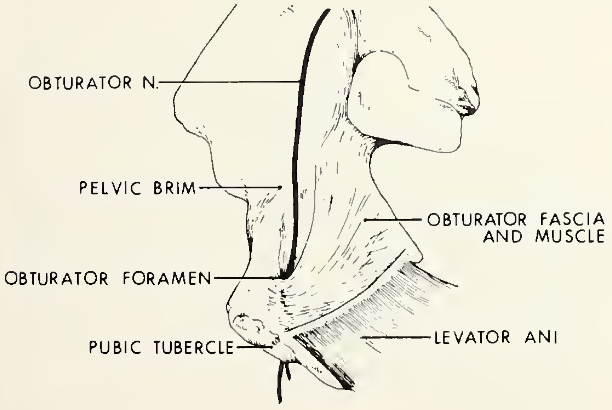

Fig. 8

In the osseofibrous tunnel roofed by the superior pelvic ramus the obturator nerve is vulnerable to compression.

Peroneal Nerve at the Knee[9 14 3]

The peroneal nerve derived from the sciatic nerve passes around the fibular neck in contact with the bone (Fig. 9). Here it divides into deep (anterior tibial), superficial (musculocutaneous), and recurrent branches. At this division the nerve is arched over by the Peroneus longus muscle. When this muscle is tightened by forced inversion of the foot, the nerve is compressed against the bone. The neuropathy can, therefore, be initiated by an inversion, plantar flexion injury of the foot. The patient will complain of paresthesia of the skin on the lateral aspect of the leg and dorsal aspect of the foot, rarely weakness of the dorsiflexors and evertors of the foot.

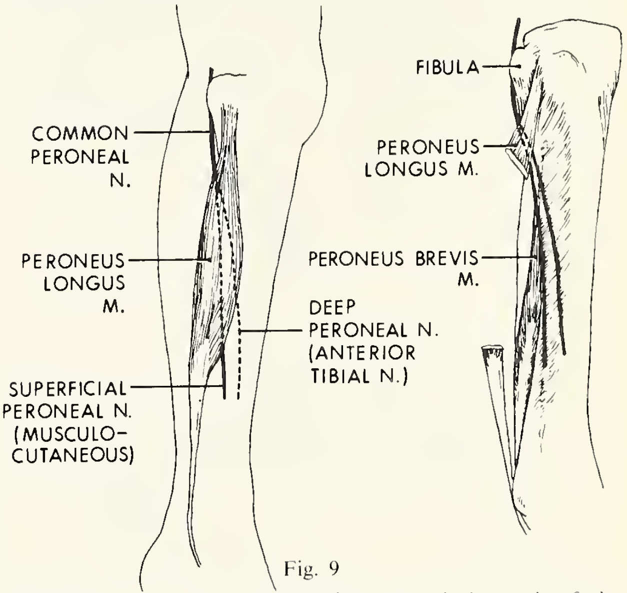
COMMON PERONEAL N.
PERONEUS LONGUS M.
SUPERFICIAL PERONEAL N. (MUSCULO-CUTANEOUS)
DEEP PERONEAL N. (ANTERIOR TIBIAL N.)
FIBULA
PERONEUS LONGUS M.
PERONEUS BREVIS M.

Fig. 9

The peroneal nerve can be stretched around the neck of the fibula by an inversion injury of the ankle. There is no fibrous constriction tissue over it in the area of the fibular head.

Deep Peroneal (Ant. Tibial Nerve)

This nerve is subject to an entrapment in its terminal part on the dorsum of the foot. If it is affected before the division into the medial and lateral branches there is pain of the skin and big toe. However, if it is the lateral branch that is trapped as it passes under the tendon of extensor digitorum brevis, entrapment weakens this muscle (toe hyperextension). If the medial branch alone is trapped at the base of the first and second metatarsals then skin pain predominates.

Superficial Peroneal (Musculocutaneous)

This nerve descends along the shaft of the fibula, supplies the peroneus longus and brevis and then pierces the deep fascia to innervate the distal lateral portion of the leg and dorsum of the foot. As it passes through the fascia the nerve may be compressed.

Saphenous Nerve

The femoral nerve continues as the saphenous nerve which passes from the femoral triangle posteromedially to enter Hunters Canal. The saphenous nerve divides into 2 branches just before leaving the canal — an infrapatellar branch supplying the knee joint, and a descending branch supplying skin on the medial aspect of the knee and leg. As it leaves Hunters Canal it may be compressed by the fascia that roofs over the canal. This fascia reduces the patency of the canal when the vastus medialis and adductor muscles contract.

Post Tibial Nerve in the Ankle[6]

This nerve, a direct continuation of the sciatic, is subject to compression in the Tarsal tunnel, called the Tarsal Tunnel Syndrome (Fig. 10). This tunnel is covered by the flexor retinaculum. After passing through this tunnel the nerve divides into calcaneal (skin sensation to heel) and medial and lateral plantar branches (skin on sole and small muscles of sole). The calcaneal branches are liable to direct trauma. The medial and lateral plantar nerves then pass through a fibrous opening in the abductor hallucis muscle. Compression during this passage may be an important cause of prolonged pain after immobilization.

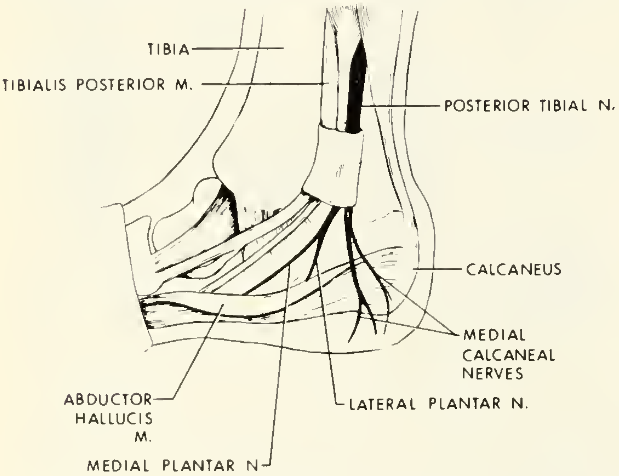

Fig. 10

The posterior tibial nerve in the ankle is similar to the median nerve at the wrist. It is in a tunnel with tendons and subject to compression by any factor that would cause synovial thickening.

Digital Nerves at the Transverse Metatarsal Ligament[3]

Digital nerves derived from the medial and lateral plantar nerves are vulnerable to trauma by the transverse metatarsal ligament (Fig. 11). At this point the digital nerves rise sharply from the division into plantar and dorsal digital branches.

At this forward edge of the ligament neuromas may occur on a traumatic basis.

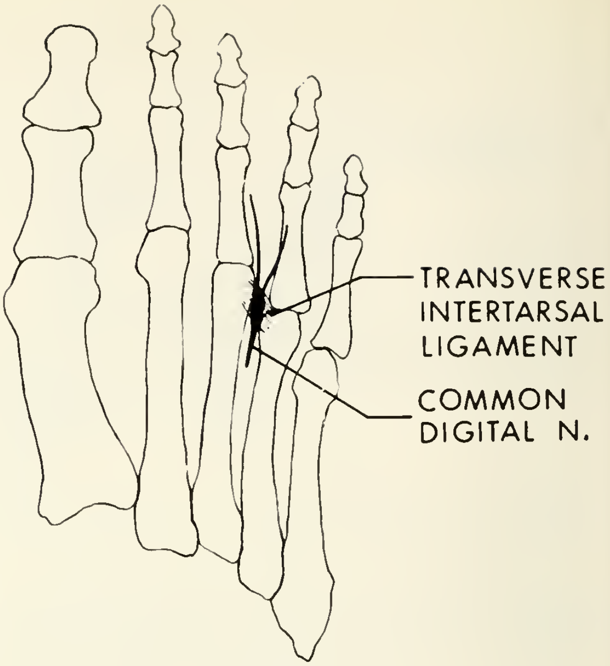

Fig. 11

The narrowing of the tunnel of the common digital nerve occurs at the flare of the fourth metatarsal head and mechanically impinges on the bifercation.

The digital nerve formed by the anastomosis of the medial and lateral plantar nerves is the most frequent site of neuroma formation. This is found at the base of the web between the third and fourth toes and is called Mortons neuroma.

Summary

The general principles of peripheral nerve entrapments have been presented and the anatomy of some of the most common entrapments have been described.

There are many causes of pain and paresthesia of a specific cutaneous area but an important consideration emphasized here is the mechanical entrapment of the peripheral nerves.

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Mammography — An Appraisal

Dorothea R. Peck, M.D. and Robert M. Lowman, M.D.

ABSTRACT — Mammography provides the only currently available method of diagnosing a non-palpable breast malignancy. Moreover the cancers diagnosed by this technique are often early with no invasion of the axillary nodes. Therefore, patients whose carcinomas have been first identified by mammography have a better than average prognosis for this dread disease. Although it is an expensive and time-consuming procedure which can be non-diagnostic in women with radiographically dense breasts, mammography can be a valuable adjunct to the clinical diagnosis of breast disease when used with discrimination. It is to be hoped that with improved radiographic techniques and increased facilities, the radiologists and clinicians in this country will be enabled to undertake wider surveys of the female population.

The mortality rate of cancer of the breast has not changed significantly since Halstead perfected the radical surgical procedure. Earlier diagnosis of this malignancy would appear to be the best method of reducing this mortality. For this purpose, techniques for radiographic examination of the breast, known as mammography, have been developed and refined. Mammography has received considerable publicity in both medical circles and the lay press. The purpose of this article is to describe the procedure to the practicing physician and to point out its assets and its limitations in the diagnosis of breast disease. It must be kept in mind that, at the present time, mammography is the only means of diagnosing a non-palpable breast cancer.

Mammography is a demanding radiographic procedure. It depends upon a meticulous soft tissue technique which has been simplified and improved since the pioneer work of Egan and Gershon-Cohen in the late 50's and early 60's. Mammograms of high diagnostic value must provide contrast in a cone-shaped organ which consists of tissues of similar radiographic density. In addition the technique must reliably demonstrate tiny calcifications which can be a valuable diagnostic sign of malignancy. The technical specifications of the radiographic equipment and film for mammography are beyond the scope of this paper. Suffice it to say the x-ray tubes which can produce the exact low kilovoltage required for excellent soft tissue radiography are being constantly improved. The special film used for mammography must be of very fine grain to demonstrate the microcalcifications associated with cancer. This type of film requires a fairly large radiation exposure to the skin of the breast and is difficult to develop. Constant improvements in film have been made which reduce the radiation to the patient and make automatic development of the film possible.

Another technical advance is Xeroradiography which is a processing technique, using photoelectric

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DR. DOROTHEA R. PECK, Assistant Clinical Professor.
DR. ROBERT M. LOWMAN, Professor of Radiology; Department of Diagnostic Radiology, Yale University School of Medicine, New Haven, Conn.

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instead of photochemical processing of the x-ray image. The same type of x-ray beam is used to produce the image, but the x-ray image is recorded on a specially charged plate, whence it is transferred permanently to paper. It is very accurate and requires less radiation to the breast. Xeroradiographic equipment has become available in Connecticut only very recently.

The necessity for a meticulous technique in mammography requires an especially trained x-ray technologist. The time required to obtain bilateral mammograms will vary, even with an experienced technologist, from about twenty minutes for an easy patient to an hour and a half for an obese elderly woman who moves with difficulty.

A complete mammographic examination consists of a minimum of two views of each breast. These are right angle projections, the "cranio-caudad" with the x-ray beam directed through the breast from its superior to its inferior aspect and the "medio-lateral" with the beam directed from medial to lateral aspect. Both require careful positioning to obtain a tangential view of the nipple and as much chest wall as possible. Additional views to demonstrate the axilla or a peripheral portion of the breast are obtained at the discretion of the radiologist.

The purpose of mammography is twofold: (1) To demonstrate breast masses and (2) to determine whether malignancy is present. The technical problem involved in achieving these ends is due to the fact that a mass in the breast does not have much differential density as compared with surrounding breast tissue (as, for example, a lung mass, contrasting sharply with surrounding air-containing lung). The breast consists of glandular tissue, ducts, vessels and varying amounts of fat and fibrous tissue. All of these structures have a similar radiographic density except for adipose tissue which is more lucent. A large mass will be denser than the adjacent breast tissue, especially if there is much fat in the breast, but a tiny mass can be completely concealed by surrounding normal glandular breast tissue. A malignant mass is likely to be irregular in shape, to be associated with increased vascularity or with skin thickening or nipple retraction. (The latter two signs can be demonstrated earlier radiographically than clinically.) In addition, breast cancer may often be associated with tiny calcifications so that a mass containing these calcifications is very likely to be malignant. Benign masses tend to be round, lobulated, smooth and displace rather than invade adjacent tissues.

The breast is an organ which undergoes constant changes throughout life. The adolescent breast consists chiefly of glandular tissue which produces a homogeneously dense radiograph. During reproductive life there is a gradual decrease in the glandular tissue which becomes replaced by varying amounts of fat. There is more fat replacement in the breasts of parous women. Following the menopause the glandular tissue atrophies more or less completely and unpredictable amounts of ducts, fibrous tissue and fat remain. Pregnancy, with its proliferation of glandular tissue, will produce very dense breasts, difficult to examine radiographically. Fibrocystic disease and other breast dysplasias will also produce dense breasts in which a small malignancy can be obscured and in which confusing densities may appear.

There are two additional diagnostic techniques available which will be briefly described. One is galactography or "ductography" which is used to demonstrate intraductal papillomata and, rarely, intraductal carcinoma. This procedure is used only when there is a moderate bloody or serous nipple discharge. Radiopaque contrast is injected into the orifice of the discharging duct, thus demonstrating the lumen of the duct. This may define an intraductal lesion. This technique can help the surgeon limit his dissection to the involved duct and avoid unnecessary sacrifice of breast tissue. The other technique is cyst aspiration, with replacement of the cyst fluid by air, followed by immediate mammography in various positions to determine whether the inner wall of a cyst is smooth or whether it might contain a small intramural mass.

To utilize mammography properly the clinician must be familiar with its limitations and assets. The limitations have already been dwelt upon at length. In addition to being time-consuming and expensive it can be quite non-diagnostic in women with radiographically dense breasts. As already mentioned, this type of breast is found in adolescence, pregnancy, many premenopausal nulliparous women and women with severely dysplastic breasts. On the other hand, in the grand multipara, and in the postmenopausal woman the presence of considerable radiolucent adipose tissue provides excellent contrast and a reliable mammogram. Thus, mammography is of the most value in evaluating the large fatty breast in which palpation is difficult.

Another limitation is the difficulty of demonstrating the most medial portion of the breast, (the portion closest to the sternum) and the superior infraclavicular aspect of the breast. These areas; however, are readily accessible to clinical examination.

Nevertheless, mammography is the only way in which a non-palpable malignancy can be discovered. Therefore, discriminating utilization of this procedure is to be strongly recommended. Most breast cancer experts have agreed upon the following conditions as indications for mammography.

1. In evaluation of breast complaints, especially pain, in patients with no mass palpable.
2. Bloody discharge from nipple.
3. Questionable masses.
4. Large fatty breasts.
5. Strong family history of breast cancer.
6. Evaluation of opposite breast in patients with known breast cancer, both at the time of surgery and as a follow up. (The incidence of cancer in these patients is much higher than in other women.)
7. Cancerophobia or unconvinced patient.
8. Search for primary.
    a. Patient with peripheral metastases and no definite breast mass.
    b. Patient with axillary nodes and no palpable breast mass.

The value of mammography as a screening procedure is controversial. Several surveys supported by the Federal Government or by various cancer societies have been reported.[1 2 3 4] The consensus of statistics from these surveys indicates that 2 to 10 cancers per thousand women examined may be discovered. The more favorable figures come from selected groups of patients or from patients who had several repeated mammograms. These cancers were certainly not all discovered on the first examination. More malignancies will be picked up if the survey is limited to women over the age of 45.

In the group of biopsies performed on mammographic indications alone (i.e., no mass could be palpated) the number of biopsies positive for cancer will be about 45% of the group. In other words, the number of false positive biopsies done on the basis of mammography is usually a little greater than the number of actual positives.

An interesting commentary is provided by Dowdy and associates.[5] They noted that to screen all women in the U.S. over the age of 40, the following would be necessary: 1,900 screening centers, each doing 100 patients per day; 3,800 radiologists; 26,600 technicians, secretaries and allied personnel. The overall cost would be $622,000,000 per year.

However, there is a very strong argument in favor of mammography as a screening procedure. This is the undisputed evidence that cancers discovered by means of mammography alone are often early cancers and that as many as 70% to 80% of the malignancies thus discovered are free of axillary node involvement.

To assess the accuracy of mammographic diagnosis, careful records and correlation with pathology in large series of cases are necessary. One of the largest of these series is evaluated in Egan's textbook of mammography.[6] He found that in a series of approximately 1,500 mammograms, followed by breast biopsy, the percentage of malignant lesions correctly diagnosed was 80% and the percentage of benign lesions correctly diagnosed was 90+%. These results were the averages for 38 different radiologists who examined the mammograms. His own accuracy in a similar group of cases was higher. Other statistics concerning the diagnostic accuracy of mammography are to be found in Witten's textbook.[7] He tabulated the results from five different prominent mammographers and his figures vary from 65% - 90% correct diagnosis of benign lesions to 63% - 97% correct diagnosis of malignant lesions. (The lower figures were obtained from a study done when mammography was in its infancy.)

It must be emphasized that most radiographers agree that about 12% of cancers of the breast cannot be demonstrated by mammography under any circumstances.

These figures all come from the leading mammographers in the country. Certainly a mammographic diagnosis, as any x-ray diagnosis, must always be evaluated by the clinician in relation to physical examination, history and laboratory studies.

The reader may ask at this point if mammography should be done when biopsy is definitely indicated clinically. In the patient with an obvious cancer of the breast, mammography is indicated for evaluation of the opposite breast since the occurrence of bilateral breast cancer is not infrequent. In the patient with a mass that is clinically very probably malignant, mammography may demonstrate another area which should also be biopsied or which should be biopsied if the original area is found to be benign.

More screening centers for breast cancer are being planned by both governmental and private agencies, and may at some time be readily available to any woman. However, regardless of the availability of a free screening center, there is no question that women in the eight categories previously enumerated should have the benefit of mammography as often as clinically indicated.

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Case of a Sinus of Valsalva Aneurysm

Alphonse Del Pizzo, M.D.

ABSTRACT — An unusual case of rupture of an aneurysm of the sinus of Valsalva is reported. The sinus arose from the non-coronary sinus with projection and ruptured into the right ventricular cavity with a diameter of 2 cms at the point of origin from the aorta and 6 mm perforation at the apex. The basic pathological anatomy was a loss of continuity between the media of the aortic wall and the aortic valve ring. Aortic and mitral insufficiencies were associated with this sinus aneurysm with death occurring from ulcerative bacterial endocarditis and congestive heart failure.

A review of the literature in 1957 by Sawyer, Adams, and Scott noted 49 aneurysms of the sinuses of Valsalva, 45 of which were confirmed by autopsy.[1] Kieffer and Winchell[2] reviewed the literature in 1960, adding 78 cases from their own institution in 59 of which rupture had occurred.

In 34 of their 49 collected cases, the aneurysm arose from the right coronary sinus; 26 of the 34 had ruptured, 19 into the right ventricle, 3 into the right atrium and the others into unusual locations. Thirteen arose from the non-coronary sinus; all had ruptured into the right atrium. Only 2 were found arising from the left coronary sinus, neither of which had ruptured. The aneurysms were cone-shaped structures projecting into the right atrial or ventricular cavity with an average diameter of 1 to 2 cm at the point of origin from the aorta and 1 to 8 mm perforation at the apex.

The basic pathological anatomy has been emphasized by Edwards[3] to be a loss of continuity between the media of the aortic wall and the aortic valve ring. A somewhat similar lack of continuity below this area, between the aortic valve ring and the membranous ventricular septum occurs in a ventricular-septal defect. This similar embryological origin is probably responsible for the fact that one fourth of the aneurysms to the right coronary sinus have been associated with a ventricular-septal. defect, but a similar association is rare with aneurysms of the non-coronary sinus.

The average age of a patient with rupture of an aneurysm is 31 years. Death from congestive failure or bacterial endocarditis usually results within a year although two patients have been reported who survived 10 and 15 years. Unusual lesions associated with sinus aneurysms are aortic insufficiency, conduction defects or myocardial infarction.

Most patients are asymptomatic before rupture of the aneurysm although a systolic murmur may be present. In some asymptomatic patients the diagnosis can be made by angiocardiography.[4] The usual symptom associated with rupture of the aneurysm is an acute precordial, parasternal or upper abdominal pain which lasts for several hours and subsequently subsides. This is characteristically followed by a short, symptom-free period and then the appearance of cardiac failure and signs of aortic and tricuspid insufficiency. A low, continuous murmur in the third and fourth intercostal spaces to the left or right of the sternum is a characteristic physical finding. The pulse pressure is widened with

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DR. ALPHONSE DEL PIZZO, Director of Medical Education, Department of Anesthesiology, Hospital of St. Raphael; and Chairman, Department of Anesthesiology, Hospital of St. Raphael, New Haven, Conn.

long fistulae. Cardiac catheterization shows left-to-right shunt into the atrium or ventricle. The diagnosis can be confirmed by aortography which may be needed to differentiate patent-ductus arteriosus, aortic-pulmonary window, ventricular-septal defect with aortic insufficiency, or coronary arterio-venous (A-V) fistula.

A valuable physical sign in any patient with coronary A-V fistulae involving the right heart was originally described by the late Dr. Gesoul of Chicago. This consists in having the patient perform a Valsalva maneuver; if the systolic component of the continuous murmur disappears or becomes considerably less intense than the diastolic component, one may be justified in presuming that the continuous murmur is due to a coronary A-V fistula communicating with the right heart. Exactly the opposite response, namely, intensification of the systolic component, occurs when the Valsalva maneuver is utilized in the presence of a persistent ductus arteriosus. Another valuable physical sign lies in compression of the fistulous tract of an A-V aneurysm which slows the pulse and is known as Branham's sign.

Anatomic features of our case are precisely those which Edwards and Burchell[3] described as characteristic of aneurysms of the aortic sinuses. It is interesting to speculate whether the aneurysm in this instance was congenital in origin or whether it could have been the result of bacterial endocarditis. Evidence would be overwhelmingly in favor of the infectious origin. There were vegetations about the aortic sinus and the aneurysm. The opening between the aortic sinus and the aneurysm was identical, however, to that which was described by many authors as typical of congenital aortic sinus aneurysms. Questions as to previous illness with chills of high-spiking fever was not elicitable from the patient. Presence of a previous murmur was also questionable.

Over 90% of ruptured aneurysms of the aortic sinuses communicate with the right atrium or right ventricle. Rupture into the left ventricle occurs with extreme rarity.[2,5]

Because of rarity of the anatomic anomaly and because of the necessity of recognition of the entity in order to successfully treat these patients via operative repair, I have been prompted to describe this case.

Report of a Case

E.S., a 27-year-old multiparous negro housewife, was admitted to the hospital with a one-day history of hemoptysis. Neither the patient nor her family was aware of the existence of any heart lesion during the early years of her life; nor was there any history suggestive of acute rheumatic fever or cardiac murmur. The patient did relate a history of iron-deficiency anemia 5 to 6 years prior to admission, but no history of sickle-cell disease or trait was noted. The patient ingested contraceptive medication daily for 1 year prior to admission.

Said patient was apparently well till 5 days prior to admission when she developed sudden pain in her anterior chest wall with radiation to left arm, shortness of breath, a hacking cough and pain with deep breathing and coughing. The patient presented herself to the emergency room of another hospital and apparently was immediately discharged with analgesic and antacid medications. The patient, however, noted no improvement of symptomatology, namely, pain aggravated by numerous coughing spells.

At the time of admission to our institution, 36 hours thereafter, the patient had a temperature of 38.2C (101F) rectally, pulse 110 beats/min feeble and collapsing in quality. The blood pressure varied between a systolic of 170-110 mm Hg and a diastolic of 40-0 mm Hg. There was no evidence of cardiac failure as noted by flat neck veins filling from above and below. This obese patient presented with mucosal pallor, hyperpnea, with a respiratory rate of 36/min. The heart was markedly enlarged and overly active to ascultation, but no cardiac thrill was noted. There was, however, a soft systolic grade^{2} murmur at the left sternal border. The patient's chest X-ray was negative for active pulmonary disease. The EKG showed a sinus tachycardia with left axis deviation, right bundle-branch block and left anterior hemiblock. Laboratory values on admission showed a hemoglobin of 10.9 GM/100ML and a hematocrit of 31%; the urinalysis was essentially negative. The initial impression was one of pulmonary embolus with subacute bacterial endocarditis.

Within less than 24 hours, the patient manifested signs of impending congestive heart failure as noted by shallow, rapid respirations at 54/min, fine crepitant rales ascultated at both lung bases which did not clear on coughing, and a temperature elevation to 40.5C (104.5F) rectally. The patient was rapidly digitalized with 2 mg digoxin in divided doses.

Within 12 hours thereafter, her vital signs were noted to be: a temperature of 39.5C (103.4F), a respiratory rate of 40/min, and a heart rate of 102 beats/min. with intermittent gallop rhythm. A lung scan confirmed a perfusion defect in her left lower lobe consistent with a pulmonary embolus. All blood cultures were negative to this time. The patient was immediately heparinized and placed on maintenance dosage of 6000 units of aqueous heparin every 4 hours thereafter.

The patient noted no chest pain at that time but recurring episodes of hemoptysis prevailed. A temperature of 39.5C (103.4F), a heart rate of 120 beats/min. with grade^{3} blowing systolic murmur at left sternal border with gallop rhythm were noted. The noted unexplained fever, coupled with the unusual murmur with a pre-systolic crescendo culminating in an accentuated first mitral sound, was suggestive of an atrial myoma.

After multiple negative blood cultures, approximately 72 hours after admission, a gram-positive organism, probably staphylococcus, was finally cultured from the patient's blood. The patient was immediately placed on 20 million units aqueous penicillin intravenously, along with 1 gram of streptomycin. Under this antibiotic regime, the patient's temperature dropped immediately to 37.9C (100.2F) level with the blood pressure of 140/30 mm Hg. A tachypnea, however, was still in evidence, coupled with a cardiac tachycardia and a grade^{4} systolic and diastolic blowing murmur most evident at the left sternal border. Bilateral basilar rales were noted upon ascultation of lung fields.

The patient was given 2 units of packed red blood cells (RBC's) because of dropping hematocrit values and persistent hemoptysis. The positive blood culture organism was finally identified as staphylococcus albus. Antibiotics, digitalis and diuretics (lasix) all utilized. Staphcillin was added to the regime in the dose of 2 gm every 6 hours. The heparin was now discontinued and nasal oxygen was replaced by intermittent positive-pressure ventilation (IPPV) utilizing 100% oxygen. This change was instituted in view of blood gas studies which were noted to be: pH 7.41; carbon dioxide pressure (PCO^2), 22 mm Hg; oxygen pressure (PO^2), 58 mm Hg; and oxygen saturation of 89.2%.

Within the subsequent 12 hour period, the tachypnea and tachycardia persisted in spite of a temperature drop to 37.6C (99.6F). A repeat chest film at this time noted a marked cardiomegaly with a prominent left ventricle and straightening of the left border of the cardiac silhouette secondary to dilatation of the left auricle. Ascultation of her chest at this time noted a harsh grade^2 aortic systolic murmur radiating to the neck vessels with a short, pistol-like diastolic murmur with a point of maximal intensity shifted to the anterior axillary line, all suggestive of acute marked cardiac dilatation. A friction rub was further noted at the left sternal border with a grade^3 intensity and parasystolic in time radiating to the left axilla.

It was deduced that only perforation or rupture of a valvular cusp could cause the sudden hemodynamic changes and rapid progressive cardiac dilatation seen in this patient. The loud apical systolic murmur suggested the rupture of the mitral cusp with sudden mitral insufficiency and dilatation of the left ventricle and atrium. Aortic regurgitation was also noted in the diagnosis.

The patient's vital signs had now changed to a temperature level of 39C (102F), pulse 160 beats/min, respirations of 60/min and blood pressure of 160/10 mm Hg. The pericardial friction rub soon disappeared; however, bilateral crepitant rales and expiratory wheezing became manifest. Two more subsequent blood cultures revealed the same gram positive staphylococcus with an antibiotic sensitivity similar to the first blood culture. The rheumatoid arthritic (R.A.) factor was positive in the dilution of 1:20. The white-blood cell count (WBC) which had been at 10,500/cu.mm now increased to a new 20,000/cu.mm level with marked shift to left. The hematocrit dropped anew to a 32% level in spite of the noted blood transfusions and the serum sodium dropped to a new low level of 116 m Eq/liter probably on a dilution basis.

Impression at this time was endocarditis secondary to a staphylococcus infection on the aortic valve causing aortic insufficiency and on the mitral valve causing mitral insufficiency with hemodynamic cardiac failure. The worsening of the patient's condition was predicted as due to formation of a mycotic aneurysm of the sinus of Valsalva with a questionable rupture into the pericardium or into the right ventricle with a left-to-right shunt. There was also free aortic and mitral regurgitation.

In spite of central arterial pressure, central venous pressure, chest X-ray and urinary output control, the patient began to fail after 36 hours of antibiotic, cardiotonic and diuretic therapy. Vital signs were noted as respirations of 50/min, blood pressure of 200/0 mm Hg and temperature of 38.5C (101F). The urinary output began to fall to low levels and the blood urea nitrogen (BUN) rose to 54 MG 100 ML. Serum electrolytes remained within normal limits, serum potassium, 5.5 m Eq./liter. The patient's cardiac signs remained essentially the same with a rough systolic murmur and a friction rub noted at the apex with a systolic ejection click noted down the left sternal border and a loud P^2 sound heard best below the left clavicle.

Because of the frank pulmonary edema, the large dilated heart, a rising central venous pressure noted above 20 cm H^2O, in spite of a strict fluid restriction regimen and also because of a BUN rising to 70 (probably due to the patient's inadequate cardiac output), rapid respiratory rate (54/min with increasing orthopnea), and a blood pressure of persistent hypertensive levels, 180-200/0 mm Hg, an emergency left heart catheterization was performed via the right brachial artery (Table 1). The patient's aortic pressure (AP) was noted to be 160-180/50-60 mm Hg. A supra-aortic injection of dye showed a normal size ascending aorta with three cusps. One cusp was noted to be prolapsed into the left ventricle. There was a slight opacification of the right pulmonary artery. A right heart catheterization, via the right median basilic vein, showed a step-up phenomenon with right auricle 30% and superior vena cava 36% respectively (Table 1). The aortic saturation was 84%. Such findings were consistent with aortic insufficiency with a left-to-right shunt probably arising from an aneurysm of the sinus of Valsalva. Since the right heart catheterization noted no oxygen increase in the right atrium, the shunt was necessarily to the right ventricle.

Upon completion of the catheterization, an immediate decision was made to correct said lesion surgically via an open-heart bypass technique. While transporting the patient to the operating room, the patient had a cardiac arrest which necessitated immediate endotrachael intubation and closed-chest massage to maintain an effective cardiac output. On arrival to the operating room, the patient developed a ventricular fibrillation which necessitated electrical defibrillation utilizing external technique with 400 milliamperes. The patient's rhythm converted to a normal sinus rhythm with a rate of 90 beats/min. The peripheral blood pressure of 80/0 mm Hg was now noted. The patient's vital signs were thereafter controlled with use of 100% oxygen via an endotrachael tube, sodium bicarbonate to correct the base deficit and an intravenous epinephrine drip as an inotropic agent. The patient was rapidly prepared and draped, but immediately prior to surgical incision, the heart again arrested and necessitated external defibrillation 3 times to again reconvert the patient's cardiac rhythm to sinus. With a cardiac rate of 90 beats/min and a blood pressure of 90/0 mm hg, the chest was opened with a sternal-splitting incision rapidly carried down to the pericardium. When the pericardial sac was emptied of approximately 400 cc of straw-colored transudate, the myocardial contractility of the heart appeared to ameliorate. Her vital signs now appeared to stabilize for 4 to 5 minutes, only to have her heart again revert to a ventricular fibrillation. A direct myocardial electrical defibrillation was attempted using first 20, then 30, and finally 40 milliamperes respectively to arrest heart action.

During the resuscitation maneuvers, other members of the surgical team cannulated the superior vena cava, inferior vena cava and aorta. The patient was placed on total bypass with excellent pump perfusion and oxygenation. A thorough examination of the pericardial contents showed a thick, diffuse pericardial reaction especially conspicuous at the parietal pericardial covering over the root of the aorta. An aneurysmal thinning of the aorto-myocardial area overlying the non-coronary cusp was noted.

When the aorta was dissected open, a diffuse granular vegetation was noted to cover the entire aortic intima, especially at the unhinged right coronary-non-coronary cusp. A fistulous tract was noted to run into the aortic wall along the aorto-myocardial junction. A second fistula pierced the right ventricle just above the tricuspid valve. The interventricular system was edematous and was involved totally by a phlegmon. (Photos 1-6).

In view of the diffuse spread of the infection process, the impossibility of replacing the aortic valve with a prosthesis, the inability of the heart to maintain any inotropic activity, a poor cerebral activity as noted by a flat electroencephalogram and the poor renal perfusion as noted by an anuric state, a decision was made to discontinue the bypass after 50 minutes.

The patient was declared expired 2 hours and 55 minutes after initiation of the procedure. A final diagnosis was now stated as a sinus of Valsalva aneurysm with diffuse secondary infection (acute ulcerative bacterial endocarditis), a phlegmon of the aortomyocardial area with unhinging of the non-coronary and right coronary commissure. (Illustration A & B)

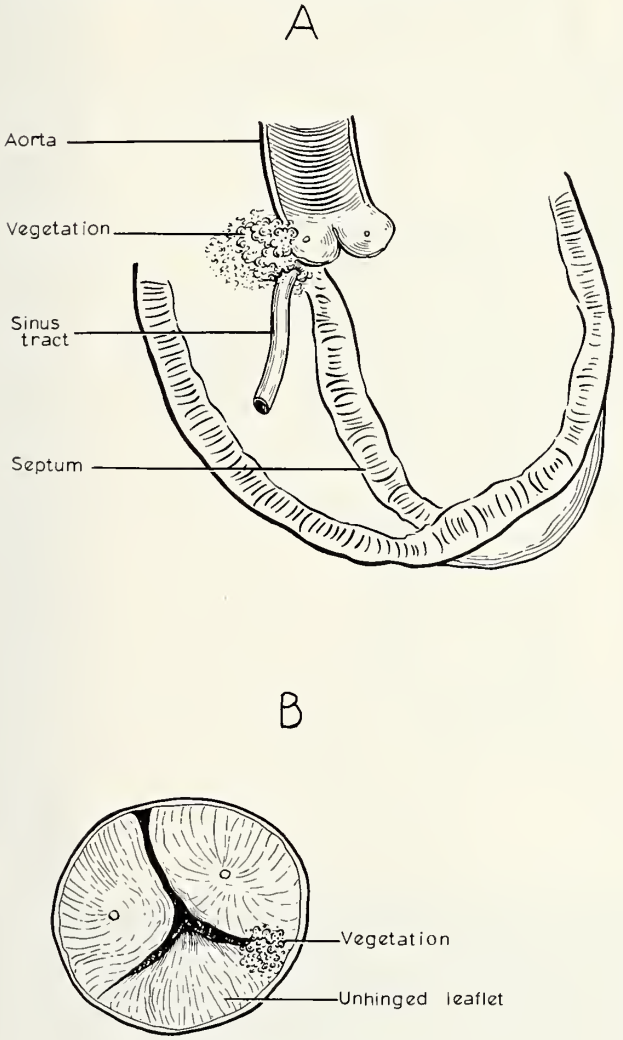

ILLUSTRATION I — (A & B)

A) Depiction of cross-section of heart noting sinus of Valsalva aneurysm with diffuse secondary infection and phlegmon of aorto-myocardial area.

B) Superior view of aortic valve denoting unhinging of leaflet at non-coronary and right coronary commissure.

TABLE I

Detailed Record of Catheterization Study

Age 27 Height 160 cm Weight 82 kilo S.A. 1.89

No premedication of anesthesia utilized

Left heart catheterization via right brachial artery and right heart catheterization via right median basilic vein.

Pressure in mm of Mercury

		Blood Samples		
Site	*Phase*	*Site**	*%Sat*	*Time*
Aorta	160-180/50-60	Aorta	84	10:30
		PA	42	10:40
L.V.	160-180/50-60	PAr	44	10:45
		RAl	42	10:50
P.A.	70-75/25	Aorta	76	10:50
		MPA	44	10:51
		RV	44	10:52
		RAh	28	10:53
		SVC	38	10:55
		RV	44	10:56
		RA	30	10:57
		SVC	36	10:58
		Aorta	74	10:69

Combined Clinical and Catheter Diagnosis:

1) Severe Aortic regurgitation
2) Aortic to right ventricular shunting

*Abbreviations:

PA — Pulmonary artery; RA — Right atrium; RV — Right ventricle; SVA — Superior Vena Cava

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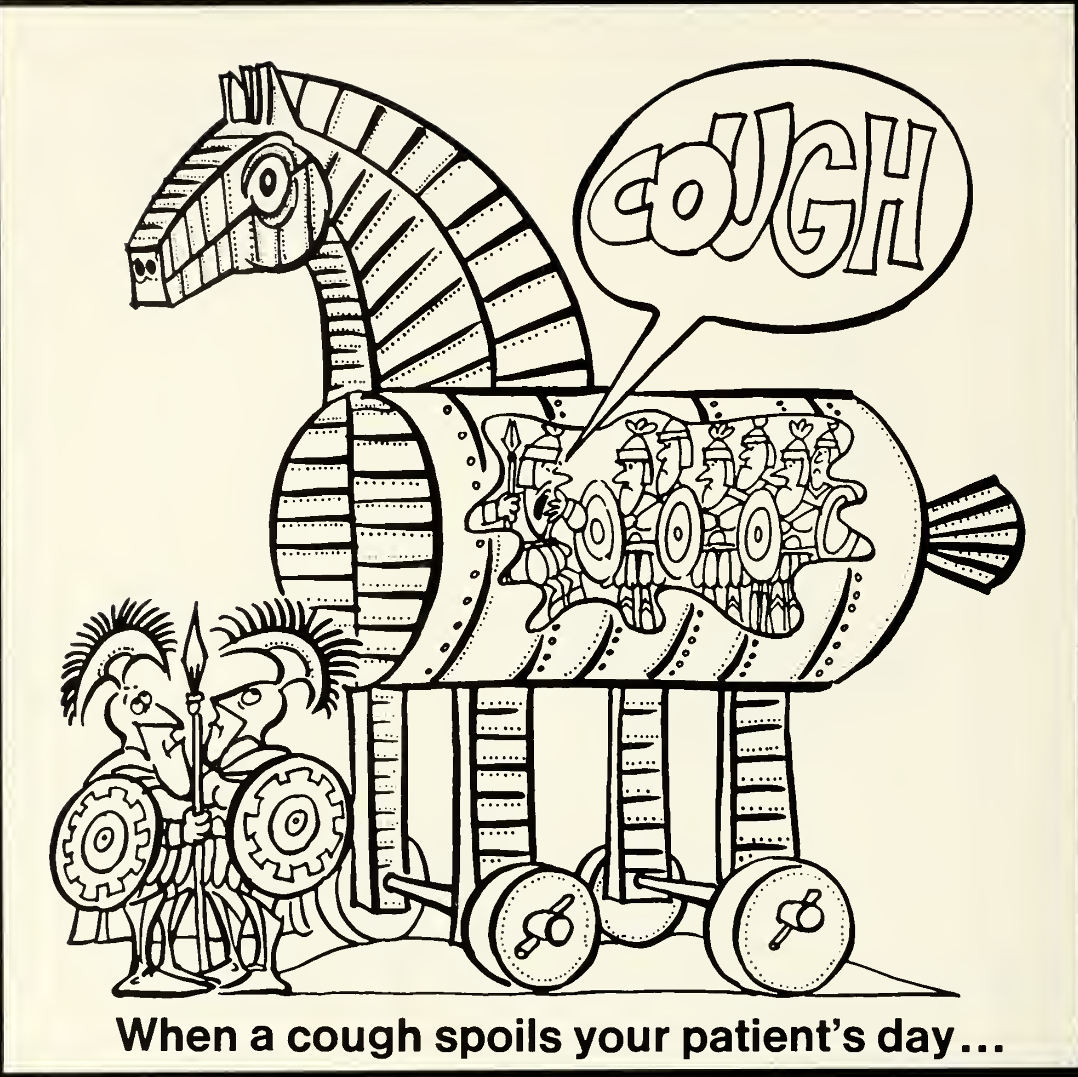
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BO–SB

Suppression of Urinary Tract Infections with Macrodantin

Edward J. McGuire, M.D. and Robert M. Weiss, M.D.

ABSTRACT — A group of patients with highly recurrent or chronic urinary tract infection were treated with long-term suppressive Macrodantin. During the treatment period the rate of recurrence was significantly altered in patients with uncomplicated urinary tract infections.

The efficacy of long-term suppressive antimicrobial treatment to prevent recurrent or relapsing urinary tract infections has not been established. Kunin's[1] studies on urinary tract infections in school girl populations suggest that long-term suppressive therapy has no advantage over repeated treatment of each acute episode of infection with a 14-day course of an appropriate antimicrobial. Clinical experience in our urologic practice, however, suggested that in some patients long-term suppressive therapy with a urinary antimicrobial was useful in the prevention of recurrent infections, and had a salutory effect on the rate of development of relapsing infections. These patients were highly selected and not typical of the much larger group who experienced an occasional urinary tract infection. In order to test this hypothesis an open study of a group of patients being followed in a urologic office practice for a variety of urologic complaints was instituted. Some patients had infections which occurred in the absence of anatomical or functional abnormalities of the urinary tract, while others had variable grades of urinary tract dysfunction.

Three groups of patients were studied. The first consisted of 20 children ranging in age from 7 months to 10 years. The second group consisted of 20 adult females with recurrent episodes of bacterial cystitis and the third group consisted of 25 adult patients ranging in age from 21 to 89 years who had significant urinary tract abnormalities. All of these patients had a urologic evaluation which included urine culture and sensitivity studies, excretory urography and cystoscopy. The children were further studied by micturating cystourethrograms.

Patients selected for treatment had demonstrated either chronic persistent bacteriuria or multiple recurrent infections in the pretreatment period. During the pretreatment period, all had received short-term courses (10-14 days) of antimicrobial therapy. Patients with uncomplicated infections, i.e. infections occurring in the absence of structural or functional urinary tract abnormalities, received a single daily dose of Macrodantin. In the adult patients this amounted to 100 mg daily and in children 2 mg/kg/day. In patients with complicated urinary tract infections, 100 mg four times daily was given to adults and 5-7 mg/kg daily to children for a 10-day period. Subsequently the dose was halved. All patients were treated for a minimum of three months and some patients were treated for as long as 18 months. The rate of recurrence in patients with recurrent urinary tract infections and an expression of the chronicity of bacteriuria in patients who were always infected was obtained in the following manner. For all patients in a group the number of months in which bacteriuria was documented was divided by the total number of months that the patients were directly under urologic supervision and in which accurate urine cultures were obtained. The highest rate of bacteriuria would thus be 1. Comparison of these rates in the pretreatment period with those obtained during long-term therapy was then made.

Results

The findings in 20 children are summarized in Table 1. Six children had uncomplicated urinary tract infections with an average recurrence rate of 0.8 infections per month. During treatment, two bacteriuric months occurred in a total of 148 exposure months, giving a rate of 0.01 infections per month. One patient in this group failed to respond to therapy. Seven patients had chronic bacteriuria in the pretreatment period. During treatment these patients had five bacteriuric months out of 90 exposure months giving a rate per month of 0.02. Five patients with chronic bacteriuria had neurogenic vesical dysfunction and the pretreatment rate of infection was not influenced by Macrodantin therapy. Seven patients with bilateral or unilateral vesicoureteral reflux were studied. In the pretreatment

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DR. EDWARD J. McGUIRE, Associate in Surgery, Urology, Yale-New Haven Hospital, New Haven, Conn.

DR. ROBERT M. WEISS, Attending in Surgery, Urology, Yale-New Haven Hospital, New Haven, Conn.

period 24 of 48 months were associated with bacteriuria giving a rate of 0.52 infections per month. During the treatment period 2 months were associated with bacteriuria out of a 104 month exposure period giving a rate of 0.05 infections per month. One of the patients with reflux failed to respond to Macrodantin prophylaxis until a ureteroneocystostomy was performed. Following this procedure a course of Macrodantin therapy was successful in clearing the bacteriuria.

The data in adult patients is summarized in Table 2. Twenty adult females with no anatomic or functional urinary tract abnormalities were bacteriuric 60 months out of a total pretreatment study period of 61 months giving a rate of approximately 1 infection per month. During treatment with Macrodantin five bacteriuric months occurred out of a total of 107 exposure months giving a rate of 0.05 infections per month. In adult females with minimal urologic disease, e.g. chronic cystitis, cystocele, urethrocele, a pretreatment rate of 0.9 infections per month was reduced to a treatment rate of 0.06 infections per month. Very little improvement was noted in patients with urinary calculi, neurogenic vesical dysfunction or bacterial prostatitis. Similarly, no improvement was noted in patients with bacteriuria following prostatectomy. A total of 45 adult patients in all categories had 230 bacteriuric months out of a pretreatment exposure period of 235 months. During the treatment period, 29 bacteriuric months occurred out of a total exposure period of 182 months. However, if one separates complicated and uncomplicated infections, a significant reduction in the rate of recurrence was noted. Patients with uncomplicated infections had a decrease in the pretreatment rate of 0.9 infections per month to a treatment rate of 0.07 infections per month. Patients with complicated infections showed only a minimal change in rate decreasing from an average of 1 infection per month in the pretreatment period to 0.6 infections per month during therapy.

Discussion

This is an open, uncontrolled, clinical study. The patients involved were highly selected with docu-

TABLE 1

Diagnostic Category and # of Patients	*Pretreatment*			*During Treatment*			*#*
	Mos. Bacteriuric	*Total Mos.*	*Rate*	*Mos. Bacteriuric*	*Total Mos.*	*Rate*	*Failed*
6 Recurrent U.T.I. No functional disability	42	52	0.8	2	148	0.01	1/6
7 Chronic Infections (5 with neurogenic bladders)	9	9	1	5	90	0.05	5/7
7 Reflux	25	48	0.52	2	104	.02	1/7

TABLE 2

		Pretreatment			*During Treatment*		
Diagnostic Category	*#*	*Mos. Bacteriuric*	*Total Mos.*	*Rate*	*Mos. Bacteriuric*	*Total Mos.*	*Rate*
Adult females No anatomic or functional disability	20	60	61	1.0	5	107	0.05
Adult females Minimal urinary tract abnormality	6	52	55	0.9	6	48	0.12
Urinary tract calculi	3	36	36	1.0	3	8	0.4
Neurogenic bladder	2	36	36	1.0	2	2	1.0
Prostatectomy	12	41	41	1.0	12	12	1.0
Prostatitis	2	5	6	0.8	1	5	0.2
TOTAL	45	230	235	0.98	29	182	0.16
Uncomplicated	26	112	116	0.9	11	155	0.07
Complicated	19	118	119	1.0	18	27	0.7

mented, recurrent urinary tract infections or with chronic bacteriuria and the rate of recurrent urinary infection or the chronicity of the bacteriuria constituted a major clinical problem. Studies by Kunin[1] [2] and Bergstrom[3] in school girls have indicated that 60 days of antimicrobial therapy is no better than 10 days therapy, and 25% to 40% of patients with urinary tract infections do not experience a recurrence after a single course of therapy regardless of the number of preceding recurrences. The pretreatment rate of recurrence for the children herein reported is such that we can only suppose that these are very highly selected patients who maintain a higher rate of recurrence and thus represent a very small subgroup of those patients with recurrent urinary infections. With the exception of those children with chronic persistent bacteriuria, children with recurrent infections in the pretreatment period showed a fall-off of less than 25% after each infection treated with a short course of antimicrobial therapy. The rate of recurrence following cessation of Macrodantin therapy in five of these children in whom prophylaxis was judged successful was 100%. These patients discontinued their Macrodantin for a variety of reasons at three to eight months after onset of treatment. Recurrences developed within one month of stopping therapy.

Overall, the patients who responded best to Macrodantin prophylaxis were those with uncomplicated urinary tract infections. The absolute rate of development of recurrent urinary tract infections in this group of patients was significantly decreased by long-term therapy. Patients with infections associated with urinary tract calculi, obstructive uropathy or neurogenic vesical dysfunction responded less well to long-term Macrodantin therapy. The use of suppressive therapy in patients with neurogenic vesical dysfunction or urinary calculi associated with urea splitting organisms, seems inappropriate. Macrodantin prophylaxis, however, is particularly adaptable to prevention of recurrent uncomplicated urinary tract infections because it has little effect on bowel flora from which pool the organisms responsible for bacterial colonization of the urinary tract originate.[4] [5] In patients with uncomplicated infections whose major symptomatology is the rate of recurrence, Macrodantin provides an effective decrease in the number of infections in a given time period, when compared to intermittent therapy in response to acute symptomatic infection. Whether such recurrences, of themselves, in the absence of anatomical or functional urinary tract abnormalities constitute a significant danger to a patient's health is not entirely clear. Certainly the risk of such serious complications is small. However, in patients with demonstrable vesicoureteral reflux the risk of serious renal damage from pyelonephritis may be significant. In these patients a decrease in the rate of occurrence, or the absence of recurrence, even if this requires protracted low dose therapy would appear to be desirable. Operative correction of reflux does not always result in lessened rates of lower urinary tract infection as some of the factors predisposing these patients to recurrent bacterial colonization of the urinary tract are not modified by reimplantation. While antimicrobials of this type cannot reasonably be expected to alter anatomical or functional entities which lead to urinary tract infection, they can be a useful method of decreasing the rate of recurrent infection.

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The President's Page

In my report to the House of Delegates on December 13, 1973, I commented on a matter which seemed to me to be of considerable consequence currently. There follows the substance of my remarks:

I bring to your attention what to me was a surprising and momentous decision of the AMA House of Delegates which was made and confirmed on December 5th. The subject of the decision was PSRO, and the statement adopted reads as follows:

"It is considered opinion of this House of Delegates that the best interests of the American people, our patients, would be served by the repeal of the present PSRO legislation. It is also believed that this (statement) is consistent with our long-standing policy and opposition to this legislation prior to its passage."

By adopting this statement, the House of Delegates has served notice of its conviction that the bureaucratic approach mandated by the PSRO law is not one that will promote optimal peer review or achieve the stated objectives of the legislation. Instead, the House has advocated strongly that each hospital medical staff, working cooperatively with the local medical society, continue to develop its own peer review procedures to the point of effectiveness and validity that they will be "unassailable by any outside party or parties."

Having served as chairman of our Committee on PROs, Foundations and HMOs for almost two years, I long ago reached the conclusion that great difficulties are to be anticipated in trying to develop such an "unassailable" system. How does one construct a reviewing process which is at the same time effective but not deleterious to that all important, though hard-to-define, relationship that exists between patient and physician? Or how does one go about monitoring the professional work of a group of highly-trained doctors — each bringing to bear his own personal experience and expertise in the care of his patients as individuals, taking into account the infinite variations of signs and symptoms — and mental and physical reactions — that each may manifest within the same disease entity?

I think, therefore, that it is not surprising that the medical profession has until now elected to move slowly — perhaps a bit too slowly — toward refining peer review to the mathematically precise mechanism that some envision to be our ultimate goal. The enactment of the PSRO law, however, has rather suddenly confronted us with a challenge to move ahead much faster in this area — seemingly at a faster rate than good medical judgment might tell us that we should go. As I view the currently unclear and confusing PSRO picture, it is essential that we avoid being stampeded into trying to develop instant Utopia in peer review via implementation of PSRO, and, as a consequence, having to bend medical judgment regarding the quality, confidentiality and cost of medical care to conform to a pattern shaped by outside regulation. It is this latter consideration, I believe, that prompted the House of Delegates of the American Medical Association to adopt the policy statement I reported on above and to call for repeal or major amendment of the PSRO law.

In closing, I acknowledge that some of the observations and comments I have made here are personal and not necessarily in complete accord with those of all who may read them. I trust they will be received in the same spirit in which they are offered — as only one man's opinion and nothing more.

Sidney L. Cramer, M.D.,
President

Reflections from the Dean's Office

Robert U. Massey, M.D.

Recently I finished reading a book I had received from my daughter for Christmas: *The Man Who Saw Through Time* by Loren Eiseley,[1] a revised and enlarged edition of his earlier work, *Francis Bacon and the Modern Dilemma.* In my list of favorite authors, ancient and modern, Loren Eiseley stands high; and Francis Bacon occupies a special place in my pantheon of heroes.

Every time an academic administrator is required either to make or advise someone else to make a major decision about some school matter, the question of the purposes of a university is properly raised. Like answers to most difficult questions, it depends on points of view and may come out resembling a grocery list.

Bacon touches on what must be the essential ground beneath the answer: "The unlearned man knows not what it is to descend into himself, or call himself to account . . . whereas with the learned man it fares otherwise, that he doth ever intermix the correction and amendment of his mind with the use and employment thereof."

From the ideal of the examined life, Bacon moves to man's growing knowledge of nature: "For the world is not to be narrowed till it will go into the understanding (which has been done hitherto) but the understanding is to be expanded and opened till it can take in the image of the world."

The work of the universities and their professional schools needs to be rooted here; but in the real world — by which we generally mean the artificial world — that work seems too often lost in a confusion of undirected and contrived busyness. The scholars forget their disciplines outside their laboratories and libraries.

Humanists are not necessarily humane, and moreover they frequently are uninformed about many of the most glorious accomplishments of the human mind, especially in the natural sciences. Scientists may be astonishingly unscientific, making decisions on the thinnest of evidence, frequently informed by opinions that are little more than superstitions. The devil is undoubtedly a superb theologian.

Eddington wrote "I have no serious quarrel with the average physicist over his philosophical creed — except that he forgets all about it in practice."[2] This should not be taken out of context. What Eddington was saying related to the inability of the methods of physics to reveal absolute truth and the tendency of physicists to behave at times as though they were in possession of absolute truth — a tendency not limited to physicists, or even to scientists generally, although less excusable in them.

While he did not invent it, Francis Bacon turned induction into a powerful "engine" for the attainment of truth; the only means we have for countering, in Eiseley's words, "our human tendency to leap to unwarranted conclusions."

Inductive reasoning, the scientific method, disinterested observation and recording of data are as much required in the clinic as in the research laboratory. Without the rigorous application of the scientific method to the solution of clinical problems, technology, organization, individual genius, and general good will are likely to result in bad and expensive medical care.

Bacon presented an "engine" for gaining an understanding of the world. He was describing not a philosophical system, but a confirmed habit of mind for the understanding of all phenomena, and for the discovery of new knowledge. He distrusted systems.

Bacon did not hold that knowledge alone or unaided would bring us the world we dream of in our good dreams. In Eiseley's words "only by charity and pity did Bacon foresee that man might become fit to rule the kingdom of nature. The technological arts alone had concealed in them, he realized, a demonic element."

Humanism and scientific method are not poles apart and need never to be in conflict. It is the business of education to bind them in Bacon's words "for the uses of life." By bringing knowledge and charity together in one place the University has the means to form new minds for the task of building a *New Atlantis.*

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ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.

Connecticut Medicine

Editorials

The Surgical Audit
(Yale-New Haven Plan)

The Surgical Audit using predetermined weighted criteria is an interesting study and a sincere effort to develop a methodology for quality review incorporating clinical judgmental factors and utilizing nonprofessionals in the review process. The Committee is commended, and should be encouraged to continue this experimental project.

The Committee notes the disadvantages of using the medical record as a source for reflecting the actual care by the physician. However, it is the only method of evaluating care in depth of those patients who do not have the desired outcome. The weighting system is cumbersome at first glance. However, comparing the appendectomy example with the New York Plan of Weights, the results are essentially the same. (31% vs. 30% and final weights of 1.302 vs. 1.350).

There are some interesting observations such as:

(1) In the diagnostic category of chronic cholecystitis, those physicians with the lowest work-up scores had the highest complication scores. While we would like to think a good diagnostic work-up will lessen the complication rate, and probably will, there are many variables that must be considered.

(2) The decrease in the post-operative stay in cholecystectomies might reflect some degree of increased consciousness of utilization review.

(3) The tendency to add work-up criteria rather than to modify or delete is common to most national specialty society's criteria. Recognizing the impracticality of a long list of criteria, the New York Plan developed the criteria predictor concept in 1968 of using only the most sensitive criteria, analagous to the Harris or Gallup poll concept of predicting elections. We believe this premise is valid. In addition, a detailed sophisticated set of criteria might provide a blue print for litigation and result in a further increase of defensive medicine, thereby defeating the cost control intent of PL.92.603.

"The main disadvantage to the method is its narrow scope. There are many areas of surgical care not appraised by this method." The authors are very candid in their evaluation. To illustrate this point, the physical examination contributed approximately 31% of the total work-up in this and the New York Plan. However, when one equates the indication for surgery, pre-operative preparation, operative description and post-operative care, the physical examination contributes only 15% of the total care of the patient in the category of appendectomy and similarly decreases from 28.5% to 12.5% in biliary tract disease. It might be productive to include the above factors in the next phase of the project.

The documentation of indications for operation, progress notes and the game plan for treatment are the criteria the government uses for payment of physician and hospital services for Medicare and Medicaid patients. Documentation is the name of the game if one expects to be paid from federal funds. It's a new ball game, but I guess we will have to learn to live with it.

There are many other areas which might be included in future studies such as: Use and abuse of antibiotics and an evaluation of supportive services of nurses, technicians and other paramedical personnel. In the municipal hospitals in urban areas, the deficiencies of supportive services of an administrative and professional nature leaves much to be desired.

The Surgical Audit Methodology is an excellent study of limited scope in evaluating surgical care. The Committee should be applauded for their valiant effort in attempting to solve a difficult and complex problem. It certainly deserves the cooperation and support of all involved parties.

"It is better to light a candle than to curse
the darkness.'

Ralph S. Emerson, M.D.
Chairman, Steering Committee,

Surgical Criteria Predictor Project,
Medical Society of the State of New York,
New York State Department of Health,
New York State Department of Social Services,
Hospital Association of New York State.

Special Article

Surgical Audit Using Predetermined Weighted Criteria

C. Gene Cayten, M.D., M.P.H., Laurence A. Tanner, B.S., M.P.H.,
Donald C. Riedel, Ph.D., and Kenneth H. Williams, Jr., M.D.

Abstract — A method of audit for evaluation of surgical care from the medical record, consistent with the Professional Standards Review Organization legislation, was developed and pilot tested at Yale-New Haven Hospital. Predetermined weighted criteria were used to collect data evaluating process and end-results. The method and data from six diagnostic-operative categories were found to be acceptable to the surgical staff and useful in improving certain areas of patient care. Thereafter, the entire surgical staff was given an opportunity to revise and re-weight the criteria in two of the diagnostic-operatives by which they had just been audited. Greater staff participation in the criteria development and weighting resulted in increased number of work-up criteria and generally lower weighting of the work-up and complication criteria, but a subsequent re-audit showed no overall improvement in the work-up or complications scores.

Introduction

As we develop and implement new methods of health care organization and delivery, train new health care personnel and experiment with new methods of health care financing, it becomes increasingly important to measure the quality of care provided. In addition, the new Professional Standards Review Organization legislation requires the quality of care for patients under Medicare and Medicaid be evaluated according to professionally developed norms of care. The norms must define the types and intent of health services which are considered appropriate because of professionally accepted diagnostic specific criteria.

Though the tissue committee, developed by the American College of Surgeons twenty years ago, has been acclaimed as a method of evaluation of surgical care, it is narrow in scope and questions are now arising as to how effective it really has been or could be.

A method of surgical audit was developed at Yale-New Haven Hospital through extensive discussions with members of the department of surgery, present and former members of the tissue committee, and members of the patient care studies department.

The method would work as follows: a minimum of three surgeons would serve overlapping terms of four to six months. The chairman of the hospital audit or medical records committee would function as a permanent ex-officio member of the committee to provide continuity for the rotating membership. The services of a part-time secretary-medical record abstractor would be made available to the committee from either the Department of Surgery or the Department of Medical Records, or both. The Audit Committee would meet at least monthly and undertake the following activities:

1. Decide on the diagnostic or operative categories to be reviewed for the following month.
2. Develop the abstract and the abstracting guide in general, leaving the technical aspects for the medical record abstractor. The abstract would provide for collection of information relating to the patient's characteristics (age, sex, race, etc.), diagnosis and operation, the physician's work-up performance, the occurrence of complications, and the length of stay.
3. Develop and "weight" the criteria to be used in the abstracting.
4. Decide, with consultation from a statistician, on the number of cases or the period of time to be studied.
5. Review the data collected and assess the meaning of significant appropriate findings.

DR. C. GENE CAYTEN, Associate in Surgery, Associate in Community Medicine, University of Pennsylvania School of Medicine; Attending Penn. Surgical Service, Philadelphia General Hospital, Philadelphia, Pa.

DR. LAURENCE A. TANNER, Assistant Administrator, Waterbury Hospital, Waterbury, Conn.

DR. DONALD C. RIEDEL, Professor of Public Health (Medical Care) Department of Epidemiology and Public Health, Yale School of Medicine, New Haven, Conn.

DR. KENNETH H. WILLIAMS, JR., Assistant Professor of Psychiatry and Medicine, University of Pittsburgh School of Medicine, Pittsburgh, Pa. Formerly: Director, Department of Patient Care Studies, Yale-New Haven Hospital, New Haven, Conn.

6. Decide on the format of presentation of the audit results to have the greatest possible educational impact on the remainder of the surgical staff.
7. Discuss and decide upon any revisions in the criteria or weighting of the criteria used in the abstracting.
8. Carry out the functions of the old tissue committee by reviewing unexplainable normal tissue removed at surgery, again using pre-established criteria.
9. Prepare a summary of the audit and tissue review to be sent to each member of the surgical attending staff, house staff, and chiefs, as well as to the Patient Care Studies Committee.

Materials and Methods

A pilot project was developed to show how parts of the proposed method of surgical audit could work. The project included the following parts:

1. *Choice of operative-diagnostic areas for audit* — The following operative-diagnostic categories were chosen: a) appendectomy for acute appendicitis, b) inguinal herniorrhaphy for inguinal hernia, c) operation for lesion of the breast, and d) cholecystectomy for acute and, e) chronic cholecystitis with or without cholelithiasis. They represented the most common categories for which the staff had previously established criteria for evaluation.
2. *Development of a diagnostic-specific abstract* — The basis content of the abstract was the criteria for the specific diagnoses listed in "The Yale-New Haven Hospital Criteria for Evaluation of Cases in 49 Diagnostic Categories," developed by the hospital medical staff. This included admission criteria, work-up criteria, post-operative complications and discharge criteria. These criteria were used intact except that the first seven complications were modified to be common for all diagnoses.

   Also included in the abstract was certain patient identification information: patient number, hospital physician code, month and year of operation, patient's age, total and post-operative length of stay (in days), the admission and post-operative diagnoses, the patient's sex and race, and the treatment unit.

   The abstract was so designed that the data could be abstracted sequentially from the medical record, transferred to IBM cards, and machine processed.
3. *Development of a weighting system for the work-up and complication criteria.* — In order to arrive at a score that would reflect the overall quality of a patient's work-up, it was necessary to weight each of the criteria according to its relative importance in the total work-up for the specific diagnosis evaluated. Five surgeons from the staff weighted the criteria on a scale ranging from 1 to 5 with 1 indicating no importance and 5 indicating critical importance. A double system of weighting was used in which the work-up parameters, history, physical examination, etc. were weighted to arrive at the percentage each contributed to the importance of the total work-up. For appendectomy, the physical examination contributed 31% to the importance of the total work-up. This percentage was then multiplied by the weight of the individual criterion within the respective parameters to arrive at the weight used in the calculation of the work-up score for a given work-up. (i.e., Right lower quandrant tenderness as an individual criterion of the physical examination was weighted 4.2, thus the final weight for that criterion is 4.2 times .31 equalling 1.302).

   The complications were weighted from 1 to 5 relating to the degree to which they might have been prevented by the surgeon. An assigned weight of 1 would indicate that the weighting surgeon believed that the particular complication could not under most circumstances have been prevented by an attending surgeon, while an assigned weight of 5 would indicate that the weighting surgeon believed that the particular complication was preventable by an attending surgeon. The complication score was arrived at by totalling the weights of the complications that developed in the course of a given patient's hospitalization.
4. *The abstracting process* — An abstracting guide was developed to clearly define the criteria and other data being abstracted for non-physician abstractors and to enhance the inter-abstractor reliability. The abstracting guide was then refined with the results of a reliability test performed on 20 randomly selected medical records (five from each major diagnostic category, by four separate abstractors: two physicians, a former medical corpsman, and a nurse).

   A repeat reliability test was performed at the completion of the abstracting process, taking a similar sample and using the same four abstractors. There was a high degree of inter-abstractor and intra-abstractor reliability.

5. *Systems analysis of the data*—Computer programs utilizing mainly the data text machine and Fortran IV computer languages were combined to analyze the data. The computer-displayed data was then further refined for graphic presentation.
6. *Presentation of the data*—Consideration advice from the surgical staff was used to develop a format for the presentation of the data. The data from the project audit was presented by diagnosis as follows:
    a. Summary of the data (See Fig. 1).
    b. Listing of criteria, their weights, and the percentage fullfillment (See Fig. 2).
    c. Bar graphs showing length of stay by age, group, sex, race, treatment unit, and physician (See Fig. 3).
    d. Bar graphs showing physicians' mean weighted work-up scores and their mean weighted complication scores (See Fig. 4-6).

Figure 1

SUMMARY OF DATA

CHOLECYSTECTOMY

The mean weighted work-up score was approximately 80% of the highest possible score. The mean complication score was 1.5 (0 would mean no complications).

WORK-UP

1. Reference to jaundice which had been weighted as the most important historical criteria was noted in 68% of the cases.
2. A pre-operative blood sugar was done in 65% of the cases.
3. Barium enema and IVP's were performed in only 18 and 14 percent of the cases respectively.

COMPLICATIONS

1. 12% of the patients had wound infection.
2. 14% of the patients had pulmonary complications.
3. 30% of the patients had urinary complications (mostly urinary retention).
4. 9% of the patients had elevated serum amylase or lipase.

DISCHARGE CRITERIA

1. 14% of the patients were discharged with a temperature of 100 degrees or greater during the 24 hours prior to discharge.

LENGTH OF STAY

1. The mean total length of stay was 11.1 days.
2. The mean post-operative length of stay was 10.0 days.
3. The length of stay was increased by four (4) for those over 60.
4. Males stayed two (2) days longer than females.

Figure 2

Cholecystectomy for Chronic Cholecystitis or Cholelithiasis

(Weights)		%
	Admission Criteria (presence of):	
	Pain	79%
	Nausea	36%
	Vomiting	26%
	Recurrent gallbladder attack	92%
	Fever	3%
	Jaundice	8%
	Suggestive x-ray evidence of disease	88%
	Diagnosis of cholelithiasis or cholecystitis admitted for operation	91%
*	History (reference to):	
(.90)	Food intolerance	73%
(.93)	Previous attacks	99%
(1.02)	Jaundice	68%
	P. E. (none specific)	
	Laboratory (performance of):	
(1.8)	CBC	100%
(.57)	Urinalysis	100%
(.57)	Liver function tests	82%
(.57)	Blood sugar	65%
(.54)	BUN	85%
(.54)	Type and cross match	87%
	Radiology (performance of):	
(.86)	Oral Cholecystogram or intravenous cholangiogram	94%
(.61)	Upper GI series	46%
(.47)	Barium enema	18%
(.43)	Intravenous pylegram	14%
(.57)	Electrocardiogram (performance of):	99%
	Agreement between pre- and post-op diagnosis	100%
	Agreement between pre-op and pathological diagnosis	100%
**	Complications:	
(3.0)	Wound infection	12%
(3.8)	Wound disruption	2%
(2.4)	Pulmonary complications	14%
(2.0)	Cardiovascular complication	3%
(2.2)	Urinary complication	30%
(4.4)	Retained common duct stone	2%
(3.6)	Pancreatitis (elevated amylase or lipase)	9%
(3.0)	Unexplained jaundice	2%
	Fever of unknown origin	0%
	Phlebothrombosis	0%
(2.0)	Post-operative hemorrhage	2%
	Discharge criteria:	
	Febrile	14%
	Wound *not* healing well	2%
	No return of gastrointestinal function	0%
	Complication *not* controlled	10%

* Work-up criteria weighted according to their relative importance.

** Complications weighted according to the degree they are preventable by the surgeon.

The above information was sent to the surgical staff, one diagnosis at a time, at weekly intervals with a covering letter explaining the project. Low work-up scores, the letter suggested, could be attributed to one or more of the following:

1. The criteria used were inappropriate.
2. The criteria were weighted inappropriately.
3. The medical record did not reflect what actually occurred.
4. The criteria reflect an area where care could be improved.

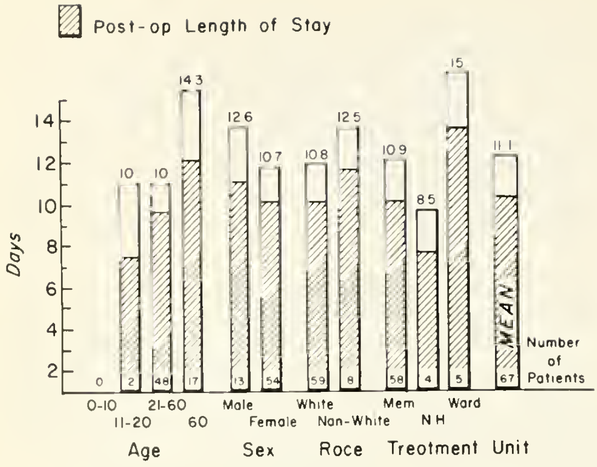

Figure 3

Length of stay for cholecystectomy for chronic cholecystitis or cholelithiasis by age, sex, race and treatment unit.

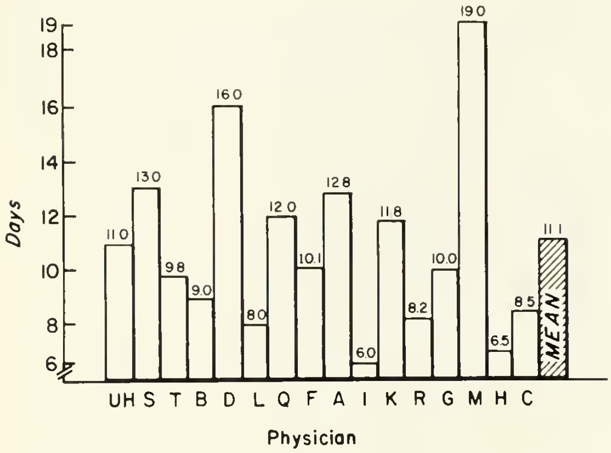

Figure 4

Length of stay for cholecystectomy for chronic cholelithiasis by physician.

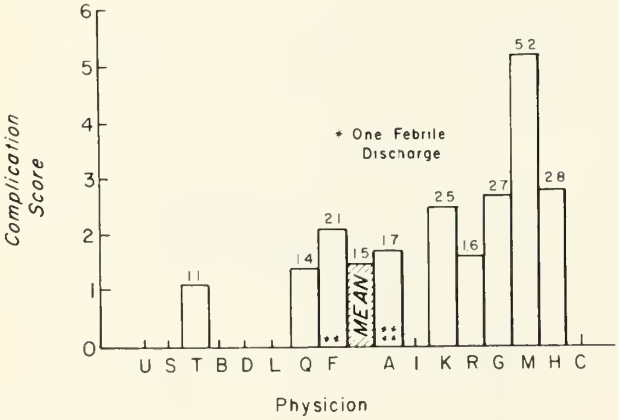

Figure 5

Percent of highest possible work-up score for cholecystectomy for chronic cholecystitis or cholelithiasis by physician.

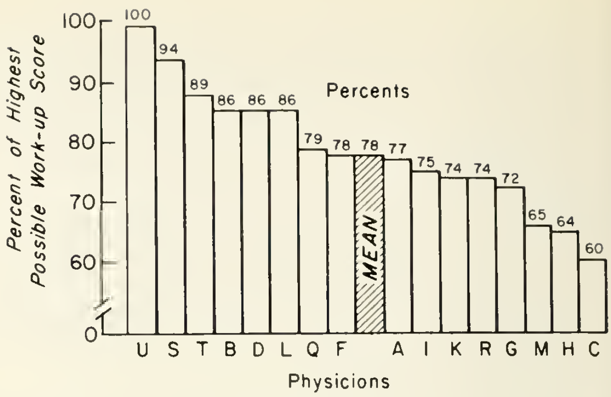

Figure 6

Complication score for cholecystectomy for chronic cholecystitis or cholelithiasis by physician.

7. *Assessment of Physician Acceptance*—Acceptance of the method was arrived at by personal interviews with selected members of the surgical staff; response of surgeons at presentations to the morbidity and mortality conferences and to the Patient Care Studies Committee, as well as by a questionnaire to the surgical staff.

8. *Revision and Reweighting of Criteria*—The criteria for two diagnoses were revised and reweighted with increased participation by the surgical staff; and the fulfillment of the new criteria compared to the original ones for the period May 15 to August 15, 1971. This was done:
   a. to show how the method could be refined through the revision of the criteria and weights
   b. to see how expanded staff participations would affect the selection of criteria and the weights
   c. to compare staff performance using criteria and weights of their own choosing compared to those arrived at through limited participation.

9. *Effects of the Audit*—In order to see if the data presented to the surgical staff might result in improvement in some areas of care, a re-audit using the same criteria and weights was carried out for the period of time subsequent to the dissemination of the original data in the two diagnoses.

Results

Data from the original audit of the six diagnostic-operative areas was presented in the form shown in Figures 1-6. Some examples of the types of results obtained are as follows:

a. All of the patients fulfilled the diagnostic-specific admission criteria, but every patient did not fulfill every admission criterion for a given diagnosis. (i.e., a patient did not need to have all the symptoms of appendicitis to fulfill the admission criteria).

b. The percentage fulfillment of the best possible work-up score varied from a low of 59% for benign breast lesions to 90% for acute appendicitis.

c. For the most part, work-up criteria which were weighted the highest (most important) received the highest percentage of fulfillment. The major exceptions were the historical criteria: pulmonary symptoms for inguinal hernia, and jaundice for cholecystectomy which were fulfilled to 59% and 68% respectively.

d. Pre-operative chest x-rays were performed in less than 50% of all cases.

e. There was a very high degree of agreement between the pre-operative, post-operative, and pathological diagnosis.

f. For the five diagnoses studied, the most common complications were urinary tract complications, wound infections, and pulmonary complications. The incidence of these complications was considerably higher with intra-abdominal operations.

g. Pre-operative length of stay averaged less than a day-and-a-half except for breast lesions where cancer is suspected, which averaged three days.

h. A physician's overall average work-up score usually bore no relationship to his overall complication score. A major exception to this was seen in the diagnostic category of chronic cholecystitis where those physicians with the lowest work-up scores had the highest complication scores.

Physician Acceptance

The questionnaire was returned by 17 of 23 (74%) physicians actively practicing surgery; and by three residents. The results shown on Table 1 provide a positive response as to the usefulness of the data and the method. The questionnaire also elicited the feeling that the data would be of most value to the surgeon and of least value to the hospital's administrator. The questionnaire results were corroborated by interviews and conference presentation feedback.

Dissatisfaction with the method included the disadvantages of using the medical record as a source, the inability of the method to reflect the care actually provided by the physicians and the difficulty in understanding the weighting of the work-up criteria.

TABLE 1

RESULTS OF PHYSICIAN QUESTIONNAIRE

1. Did the study present findings which you were not aware of:	yes	20%
	a few new findings	50%
	no	30%
2. Do you think that presenting clinical data of this type to the staff has the potential of improving some aspects of patient care:	much potential	79%
	some potential	21%
	no	0%
3. Did the data alert you to possible areas where care could be improved:	many areas	5%
	some areas	74%
	no	21%
4. Do you believe this mechanism of surgical audit to be more useful than the Tissue Committee in helping to assure a high level of patient care:	yes	38%
	somewhat more useful	31%
	no	31%
5. Do you believe this type of medical care appraisal mechanism should continue as part of an ongoing audit procedure at this hospital:	yes	58%
	undecided	32%
	no	10%

Effects of the Audit

There was relatively little change in the work-up and complication scores following the dissemination of the audit data. (See Table 2.) Some of the individual criteria which had been used as examples which had been heavily weighted, but poorly fulfilled improved quite markedly. The drop in percent of the total score for hernia resulted from a sharp drop in the fullment of one criteria. The abstracting for this particular criterion had shown a high degree of inter-observer variability.

The complication score for cholecystectomy did drop 41% and although the follow-up sample had a lower mean age, the most dramatic decreases in complications occurred with three complications which were given prominence when the original data was disseminated. The incidence of complications for inguinal hernia did not change from the baseline to the follow-up period.

TABLE 2

EFFECTS OF THE AUDIT

Comparison of the follow-up period data to the baseline data urging the original abstracts.

	Cholecystectomy		Inguinal Herniorrhaphy	
	1970	1971	1970	1971
Number of patients	66	53	81	59
Percent of highest possible work-up score	78%	78%	72%	66%
Complication score	1.7	1.0	0.4	0.4
Total length of stay	11.8	10.8	6.5	5.9
Post-op length of stay	9.2	7.6	5.0	5.0

A drop in the post-operative length of stay for those undergoing cholecystectomy probably reflects the smaller percentage of older patients in the following group, but it might also reflect some degree of increased consciousness of utilization review of length of stay.

Revised and Reweighted Criteria

The entire surgical staff was asked to accept, reject or modify the original criteria and some suggested revisions. There was a 65% return rate. The final revised criteria were arrived at by a simple majority of those responding. There was a definite tendency for the staff to aid criteria as opposed to deleting them.

The entire surgical staff was also asked to weight the revised criteria. A majority of the surgical staff responded, these surgeons accounted for approximately 70% of the surgery being performed in the two categories studied.

There was a definite tendency to add work-up criteria rather than to modify or to delete them. There was also definite tendency to weight both the work-up criteria and the complications lower than the same criteria on the original abstract. Of four added historical criteria (for both diagnoses) only one was fulfilled greater than 60%. Of six added physical examination criteria, half were fulfilled greater than 60%. Complications were weighted lower on the revised abstract compared to the surgical abstract. Partly because of poor fulfillment of additional criteria the surgeons showed a trend toward poorer work-up scores with their own criteria than they did with the original criteria which had been accepted on their behalf. (Table 3)

TABLE 3

REVISED AND REWEIGHTED CRITERIA

	Cholecystectomy		Inguinal Herniorrhaphy	
	Work-up Score	Complication Score	Work-up Score	Complication Score
Original Criteria and Weights	78%	1.00	66%	0.4
Revised Criteria and Weight	71%	0.87	55%	0.3

Discussion

Though there seem to be strong trends to improve the quality of surgical care through input appraisal and standards, allowing only board certified surgeons to do major surgery, requiring re-certification of by specialty boards, etc., the JCAH and the new Professional Standards Review Organizations push for greater sophistication in process and end-result methods of appraisal. The method described combines process (work-up criteria) and end-result (complication criteria) types of appraisal. The method's strong points are:

1. It is an internal audit with open staff participation in the development and weighting of criteria.
2. The collection of the data can be performed entirely by non-physicians and analyzed and displayed by computer according to the surgeon's specifications.

The main disadvantage to this method is its narrow scope. There are many areas of surgical care not appraised by this method. The audit method reveals the complexities of quality care evaluation and underlines the need for even more sophisticated techniques to make valid measurements of the quality of surgical care.

Physicians as Citizens

Physicians, as good citizens, possessed of special training, should advise concerning the health of the community wherein they dwell. They should bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity. They should cooperate especially with the proper authorities in the administration of health laws and regulations. — *Opinions and Reports, Judicial Council of the A.M.A.*

Infant Death

An Analysis by Maternal Risk and Health Care
Report (1973) of Institute of Medicine, National Academy of Sciences

Preface

This study was undertaken under the aegis of the Institute of Medicine of the National Academy of Sciences which considers the problem discussed therein to be of national significance.

"This is no poorly controlled, sprawling, overly ambitious study — designed as much for the next day's dramatic news study as for any legitimate research purpose. Rather it represents a serious effort by medical scholars to determine the exact relationship between pregnancy and the availability and receipt of maternal health services. . . . What, in fact, does the study tell us? . . . Women who are pregnant and who fail to receive the full advantages of contemporary medical knowledge have a far greater likelihood of losing their children than do those fortunate women who do indeed visit obstetricians and other physicians during pregnancy and thereby put themselves in a position to be helped through the various crises and emergencies that may occur. Among New York City's pregnant women for 1968, for example, a number of infants died who very definitely would have lived, given only a substantial and continuing medical relationship between their mothers and the various health services that exist today in that city, among others. They were not boys and girls born too soon — because certain fatal diseases have yet to be understood and made responsive to medical treatment. They were boys and girls who, with their mothers, of course, needed only what millions of others received: adequate medical attention. Their deaths were, by and large, utterly avoidable." Robert Coles, Harvard University.

Summary

In 1968, 142,017 live births were registered with the New York City health department. Of these children, 3,115 died the first year, resulting in an infant mortality rate of 21.9 per 1,000. More than 56 percent of the births were to white native- and foreign-born women, approximately 23 percent to black native-born mothers, and just under 16 percent to Puerto Rican women. The remaining 5 percent occurred among other race-nativity groups.

The New York Study

This study focused on the relationships among the risk of the mother, the maternal health services she received, and the survival of her infant. Fifty-five percent of the mothers were considered to have one or more social, demographic, medical, or obstetric handicaps that could adversely influence the survival of their infants. The distribution of risks varied by race-nativity group. More than three fifths of the white native-born women were at no risk, while only about one fourth of the black native-born women were at no risk. Conversely, the percentage of black women at social risk was three times that of white native-born women at social risk. For the medical risks there was little difference in distribution by ethnic group.

Of all infant deaths, 75 percent were among offspring of the 55 percent of the mothers judged to be at risk. Approximately 95 percent of those mothers at risk had social, medical, or combined social-medical conditions that could have been identified at the time of their first prenatal visit; infants born to this group of women accounted for 70 percent of the deaths.

Approximately 25 percent of the women received maternal health services judged adequate by a three-factor health services index: time of first visit for prenatal care, total number of visits, and type of hospital service where delivery took place. The percentages of women receiving adequate and inadequate care varied greatly by race-nativity group. Among white native-born women, for example, 43.3 percent received adequate care and 16.1 percent inadequate, while 40.6 percent had intermediate care; among black native-born women, the distribution at the extremes was reversed — 4.6 percent received adequate care, while 46.2 percent received inadequate care. Almost one half of the black women received health services graded as intermediate.

The Results

From the viewpoint of risk, mortality rates ranged from a low of 12.1 per 1,000 among infants of no-

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risk women to a high of 42.0 per 1,000 among infants of women at social and medical risk combined. Those whose mothers were at social or medical risk only had intermediate rates of 24.9 per 1,000 and 27.7 per 1,000, respectively. From the viewpoint of maternal care, the death rates varied from 13.3 per 1,000 live births for infants of mothers with adequate health care to 35.6 per 1,000 for infants of mothers with inadequate health care. Mothers who received intermediate care had a death rate of 18.5 per 1,000 among their infants. When risk and care are looked at simultaneously, the consistency of these findings becomes more apparent. Infant death rates in each risk category were lowest among infants whose mothers had adequate care, slightly higher if the mothers had intermediate care, and highest if the mothers had inadequate care. Generally, the same consistency was found for each ethnic group and for each risk category in each ethnic group.

When we contrasted risk and care across ethnic subpopulations, we found infant death rates varied more than ninefold, from a low of 7.4 per 1,000 for infants of white foreign-born mothers with adequate care and no risk to a high of 68.1 per 1,000 for infants of black native-born mothers with inadequate care and combined social and medical risk. For each ethnic group, offspring of women at no risk with adequate care had the lowest rates; however, infant death rates varied more than 400 percent even in the no-risk category between infants of no-risk white foreign-born women with adequate care and infants of no-risk black native-born women with inadequate care.

When we computed the relative risks of infant death for native-born white and black populations by care received, we generally found a greater risk of infant death for blacks, regardless of risk and adequacy of medical care. *With adequate care, however, there were smaller differences by ethnic group for those at no risk and essentially no difference for mothers at medical risk.* The most striking contrasts between the two ethnic groups were for mothers with social risk. For these handicaps, the differences by race were great; adequate medical care did not have as much impact in reducing mortality for black infants as it did for white infants.

The patterns for neonatal mortality rates were similar to the overall infant mortality rates. The same relationship between risk groups and outcome existed: The lowest rate was 9.1 per 1,000 for infants of the no-risk group and the highest was 32.7 per 1,000 for infants of the combined social and medical risk; the rates for infants of social and medical risk categories fell between the two extremes. There is a direct association between the three-factor health services index and neonatal mortality, with the rate of 11.1 per 1,000 for infants of women with adequate care and the rate of 26.4 per 1,000 — a rate two-and-one-half times higher — for infants of women with inadequate care. *In sum, the associations between risk, care, and outcome are the same whether outcome is death during the first 28 days of life or death during the entire first year of life.*

For infants of white mothers, postneonatal deaths, or those occurring after 28 days and before 12 months of life, accounted for approximately 20 percent of the overall death rate; for infants of Puerto Rican and native-born black mothers, deaths in the postneonatal period constituted 25 to 29 percent, respectively, of the deaths during the first year of life. Postneonatal death rates for infants of Puerto Rican and black mothers were more than two and three times as high, respectively, as those for infants of white mothers. The trends in postneonatal deaths were consistent with the trends in infant and neonatal deaths; in many instances, however, differences by care and ethnic group for postneonatal rates are greater than are the differences for the other death rates. *The significance of this finding, because of the minimal impact of prenatal care on postneonatal death, is the strong suggestion that the three-factor health services index measures a combination of factors that affect health care as well as prenatal care.*

The highest relative risk of death among infant, neonatal, and postneonatal rates is found for the postneonatal period among infants of black native-born women at social-medical risk with inadequate care. It is almost nine times higher than the relative risk for all infants of no-risk women who received adequate care and 45 times higher than the rate for infants of white foreign-born mothers at no risk with adequate care.

Infant mortality rates are related more closely to infant birth weight than to any other maternal or infant characteristic. The low-birth-weight infants (2,500 grams or less) made up 10 percent of all live births with proportions varying from 6.5 percent for white foreign-born mothers to 15.7 percent for black native-born mothers. Approximately 1.5 percent of all infants were in the weight range of 1,500 grams or less. Infant mortality in this lowest birth weight group was 609.5 per 1,000 compared to 55.4 per 1,000 among infants who weighed 1,501 to 2,500 grams and 8.4 per 1,000 among those who weighed more than 2,500 grams. Among those of optimal birth weight, 3,501 to 4,500 grams, the rate was only 5.8 per 1,000.

When the distribution of low-birth-weight infants is viewed in relation to risk category and type of care, the proportions of infants weighing less than 2,500 grams show trends similar to the death rates, indicating a direct relationship to risk and an inverse relationship to care. Thus, the lowest percentage (7.1) of low-birth-weight infants was born to no-risk women with about 11 percent born to women in each social and medical risk group and 15 percent born to women with combined social and medical risk. When care is considered, the lowest proportions, or 5.8 percent, are found in the no-risk adequate care group and the highest, or 19.6 percent, in the group at social-medical risk who received inadequate care. By ethnic group, the lowest rates were among infants of foreign-born white women and the highest among infants of native-born blacks.

As with infant, neonatal, and postneonatal mortality, a consistent inverse relationship exists between the medical care index and the percent of low-birth-weight infants; that is, low-birth-weight proportions increase as care declines from adequate to intermediate to inadequate. This holds true in each risk group also; the percentages increase from no risk to social risk to medical risk to combined social-medical risk.

In these analyses, the mother's educational attainment has served as an indicator of social status. As such, it is a proxy for a variety of components of the life style of the mother and those she will impose upon her newborn infant. While there is some question about the accuracy of educational attainment records for foreign-born mothers, it is important to note the trends in the relationship between mother's education and infant's birth weight. The trends differ by ethnic group. For black native-born women, for example, the higher the education, the higher the birth weight. For white native-born women, however, there is no clear relationship between mean birth weight and education. The strong relationship in native-born blacks between birth weight and education indicates that the life-style factors reflected by education play an important role in determining infant birth weight and, thus, survival in this population.

In contrast to the inconsistent education-birth weight relationship is the strikingly consistent relationship between the mother's education, care, and infant death. Infants of college-educated mothers with adequate care had a death rate of 10.1 per 1,000, while infants of college-educated mothers with inadequate care had a death rate of 22.0 per 1,000, more than twice as high. For infants of black native-born women with one or more years of college, there was a sixfold difference in death rates of 7.2 per 1,000 for those whose mothers had adequate care and 42.3 per 1,000 for those whose mothers had inadequate care.

Finally, we explored what the effect on infant mortality would have been if all pregnant women in the New York sample had had the pregnancy outcome of those with adequate care. These data indicate that the overall infant mortality rate would have been reduced 16 percent to 18.4 per 1,000 live births if mothers in each risk category had had the same pregnancy outcome as the other mothers in their ethnic group who had adequate care.

Maternal and Infant Health Services

We also attempted to assess, from currently available data, the effectiveness of maternal and infant health services. We found many gaps in the information needed for critical analysis. As one example, the federal-state medicaid programs, with rare exception, do not collect data on specific services purchased for mothers and infants although mothers and children make up more than half of those eligible for services under the $6.1 billion program.

We focused on two programs — MIC projects and NICU's — for which some descriptive data were available.

Maternity and Infant Care Projects

There were 56 MIC projects in operation by the end of fiscal year 1971. They reported 141,000 new maternity admissions and 42,600 new infant admissions during the preceding 12 months; new family planning admissions totaled 130,000. Federal budget estimates indicate that services were provided to 144,000 mothers and 49,000 infants in fiscal year 1972, and services will be provided to 152,000 mothers and 53,000 infants in fiscal year 1973.

We reviewed descriptive reports furnished by five selected MIC projects: New York City, Providence, Chicago, Albuquerque, and Los Angeles. In many instances, data on comparison or control groups were inadequate or absent, and lack of such control data made it difficult to come to meaningful conclusions about the impact of the projects on infant death. Before-and-after data from selected projects, however, suggest that these programs may be reducing high infant mortality in some areas.

Neonatal Intensive Care Units

A number of reports point to the effectiveness of NICU's in reducing infant mortality among high-risk newborn infants, especially when intensive neonatal care is preceded by intensive prenatal care, and strongly suggest that lowered neonatal mortality after intensive care is accompanied by more favorable long-term outcomes among surviving infants.

It is unclear, however, how many NICU's are operating in the United States at present. Neither the American Hospital Association, the American Academy of Pediatrics, or the American College of Obstetricians and Gynecologists maintains a registry. Apparently only eight of the NICU's receive direct federal project money.

As with the MIC projects, we reviewed descriptive reports furnished by five selected NICU's. Based on the before-and-after experience of the hospitals, it appears that the units can be expected to reduce mortality as well as morbidity among low-birth-weight infants from 40 to 70 percent. While the units did not report results for comparable weight groups of infants in all cases, all showed a consistent and striking decline in death rates.

Recommendations

When this program was initiated, a large body of information relating maternal, demographic, and social characteristics to infant mortality was already available. There was considerably less information, and often conflicting opinions, on the association between health services and infant survival. The rationale for undertaking this study was our belief that new information relating maternal risk and care to the outcome of pregnancy could be developed by analyzing the New York City vital statistics and reviewing existing data on MIC projects and NICU's. It was apparent at the outset, however, that definitive answers to some critical questions could not be developed from either or both of these sources of data. Nonetheless, the panel and its consultants believed that a firmer basis for policy recommendations could be established.

While there is an inherent risk in generalizing from limited sources of information and while further research is needed to verify some of these findings and to clarify specific complex social-medical issues raised by these analyses, we feel specific recommendations directed to changing the delivery of services are in order. Further research can and should proceed, but changes in the delivery of maternal and infant health services can now be made in some clearly indicated areas without waiting for the results of new research.

The recommendations are divided into two major categories: changes in delivery of maternal and child health services and research in the delivery of maternal and child health services. Some of the recommendations derive from our interpretation of the results of analyses of the 1968 study of live births and infant deaths in New York City. Other recommendations result from the review of existing MIC projects and NICU's. These recommendations are so indicated by references to specific supporting data in the text. Other recommendations stem from a large body of existing pertinent literature and the interpretation of this material by the Institute's Panel on Health Services Research and its staff, their consultants, and the Council of the Institute of Medicine.

In general, the health services recommendations relate to specific actions that can now be taken within the context of existing federal, state, and local programs for providing maternal and child health services or that could be incorporated into the present eclectic private system for maternal and child health care.

Changes in the Delivery of Maternal and Infant Health Services

All pregnant women should be evaluated in the first trimester and classified by risks that could adversely affect the survival of their infants. . . .

Guidelines for prenatal, obstetrical, postnatal, and interconceptional care should be established that are appropriate for the management of different risk categories. . . .

Health services programs that are responsible for a defined geographic area or population should identify all pregnant women in their jurisdiction. . . .

Categorical programs that deliver obstetric and infant services should be designed so that scientifically acceptable evaluations of their impact on infant survival can be made. . . .

Updated federal regulations for the Maternity and Infant Care projects should be issued. . . .

The delivery of special infant health services, particularly neonatal intensive care, should be regionalized. . . .

Traditional obstetric and pediatric manpower roles should be redefined. . . .

Research in the Delivery of Maternal Health Services

Systematic analysis of pregnant women of different risk receiving varying levels of maternal health services should be carried out. It now seems clear that funds for health services research will be in short supply in the mid-1970's. To answer the important and complex questions raised by the analysis of the New York City data, however, further research must be carried out. These studies must be carefully designed so that the new information will clarify the critical social and health policy issues and establish a firm basis for determining maternal and infant health services priorities. From the results of our study, we have identified five major areas with pressing needs for carefully planned studies:

Role of Patient Self-Selection in Pregnancy Outcome

We are all aware that many different kinds of factors, such as biological, social, economic, behavioral, and medical care, influence an individual's health status. However, we cannot determine from the study of New York City births, for example, what the social, economic, and behavioral differences are between women classified at social risk who received adequate care and those of social risk who received inadequate care. Nor do we know with certainty whether there are differences between persons of various ethnic backgrounds and the severity and nature of their social risk. For example, we need to know if Puerto Rican and white native-born women at social risk should be categorized further so that the severity of the social risk can be identified and more appropriately addressed in each case. These are hard-to-fill gaps in our social-medical knowledge but ones that can be approached, if not bridged, with carefully designed research programs.

Better Definition of Delivered Health Services

It is necessary to clarify the relationship between categories of health services as used in this study — adequate, intermediate, and inadequate — and the actual content of delivered medical care. In attempting this, research should lead to more useful classifications of care, the identification of the important elements of care, and the ability to better define different levels of care. Implicit in this research objective is the need to study further the effect of different kinds of prenatal medical care on the outcome of pregnancy.

Cost of Delivering Maternal and Infant Health Services

The analyses in this report do not address the cost or cost effectiveness of delivering maternal and infant services. Indeed, it was virtually impossible to obtain cost data for categorical programs designed to give prenatal and infant care. In carrying out such studies, an effort to assess the direct and indirect benefits of such expenditure should be made. Of paramount importance is developing some measures of the present cost of delivering these services so that comparisons with new modes of delivery can be made.

Refinement of Material Risk Measures

To refine the risk categories used in the analysis of the New York City infant births and deaths, more detailed studies of the relationship between infant survival and maternal characteristics are required. From such new analyses, providers of obstetric services would be able to determine the risk faced by an individual female and direct her to appropriate services that decrease her chances of producing a low-birth-weight or nonviable infant. The risk scale would complement expanding efforts to identify and provide intensive neonatal care to those who are in greatest need of those services.

Confirmation of Results of New York City Study

Similar studies using existing vital statistics should be carried out for other U.S. populations to assess maternal risk, care, and pregnancy outcome in rural and other urban populations.

Connecticut Physicians Art Association

The Connecticut Physicians Art Association is planning the 1974 exhibition in conjunction with the 182nd Annual Meeting of the Connecticut State Medical Society to be held at the Hartford Hilton Hotel, Hartford, April 30, May 1 and 2, 1974.

Further details will be mailed to previous exhibitors and also will be in the April issue of *Connecticut Medicine.*

Eugene Rightmyer, M.D., President
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Functions and Structure of a Medical School

Statement by The Liaison Committee on Medical Education of The Association of American Medical Colleges and The Council on Medical Education, American Medical Association.

Approved by The Assembly of The Association of American Medical Colleges November 1972 and The House of Delegates of The American Medical Association June 1973.

I. Introduction

This is a statement of the Liaison Committee on Medical Education, of the Association of American Medical Colleges, and of the Council on Medical Education of the American Medical Association.* It is intended that this material be used to assist in attainment of standards of education that can provide assurance to society and to the medical profession that graduates are competent to meet society's expectations; to students that they will receive a useful and valid educational experience; and to institutions that their efforts and expenditures are suitably allocated.

The concepts expressed here will serve as general but not specific criteria in the medical school accreditation process. However, it is urged that this document not be interpreted as an obstacle to soundly conceived experimentation in medical education.

II. Definition and Mission

A medical school is an aggregation of resources that have been organized as a definable academic unit to provide the full spectrum of education in the art and science of medicine in not less than 32 months, culminating with the award of the M.D. degree. The educational program must be sponsored by an academic institution that is appropriately charged within the public trust to offer the M.D. degree.

As an institution of higher education, a medical school has four inherent responsibilities which embody the concept of a continuum of education throughout professional life. These are:

A. The principal responsibility of the medical school is to provide its students with the opportunity to acquire a sound basic education in medicine and also to foster the development of life-long habits of scholarship and service.

B. A medical school is responsible for the advancement of knowledge through research. In addition to biologically oriented studies, the research carried on in a medical school may include studies related to cultural and behavioral aspects of medicine, methods for the delivery of health care, and in the medical education process.

C. Each school is responsible for development of graduate education to produce practitioners, teachers, and investigators, both through clinical residency programs and advanced degree programs in the basic medical sciences.

D. Another important role for the medical school is participation in continuing education aimed at maintaining and improving the competence of those professionals engaged in caring for patients.

In addition, the resources that characterize the modern academic medical center constitute a unique instrument for meeting selected community or regional health needs. As a central intellectual force within the center, the medical school should identify those needs that might appropriately meet and create programs consistent with its educational objectives and resources to meet them. These efforts can serve as models for students.

Participation by medical schools may contribute to the educational programs of other professions in the health field, such as dentistry, nursing, pharmacy, and the allied health professions.

A medical school should develop a clear definition of its total objectives, appropriate to the needs of the community or geographic area it is designed to serve and the resources at its disposal. When objectives are clearly defined, they should be made familiar to faculty and students alike, so that efforts of all will be directed toward their achievement. Schools should be cautious about overextending themselves in the field of research or service to the detriment of their primary educational mission.

III. Educational Program

The undergraduate period of medical education leading to the M.D. degree is no longer sufficient to prepare a student for independent medical practice without supplementation by a graduate training period which will vary in length depending upon the type of practice the student selects. Further, there is no single curriculum that can be prescribed for the undergraduate period of medical education. Each student should acquire a foundation of knowledge in

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*For two-year schools, see *Functions and Structure of a Modern School of Basic Medical Sciences.*

the basic sciences that will permit the pursuit of any of the several careers that medicine offers. The student should be comfortably familiar with the methods and skills utilized in the practice of clinical medicine. Instruction should be sufficiently comprehensive so as to include the study of both mental and physical disease in patients who are hospitalized as well as ambulatory. At the same time, it should foster and encourage the development of the specific and unique interests of each student by tailoring the program in accordance with the student's preparation, competence, and interests by providing elective time whenever it can be included in the curriculum for this purpose.

Attention should also be given to preventive medicine and public health, and to the social and economic aspects of the systems for delivering medical services. Instruction should stress the physician's concern with the total health and circumstance of patients and not just their diseases. Throughout, the student should be encouraged to develop those basic intellectual attitudes, ethical and moral principles that are essential if the physician is to gain and maintain the trust of patients and colleagues, and the support of the community in which the physician lives.

IV. Administration and Governance

A medical school should be incorporated as a nonprofit institution. Whenever possible it should be a part of a university since a university can so well provide the milieu and support required by a medical school. If not a component of a university, a medical school should have a board of trustees composed of public spirited men and women having no financial interest in the operation of the school or its associated hospitals. Trustees should serve for sufficiently long and overlapping terms to permit them to gain an adequate understanding of the programs of the institution and to function in the development of policy in the interest of the institution and the public with continuity and as free of personal and political predilections as possible.

Officers and members of the medical school faculty should be appointed by, or on the authority of the Board of Trustees of the medical school or its parent university. Their chief official of the medical school, who is ordinarily the dean, should have ready access to the university president and such other university officials as are pertinent to the responsibilities of his office. He should have the assistance of a capable business officer and such associate or assistant deans as may be necessary for such areas as student affairs, academic affairs, graduate education, continuing education, hospital matters and research affairs.

In universities with multiple responsibilities in the health fields in addition to the school of medicine as, for example, schools of dentistry, pharmacy or nursing, it may be useful to have a vice-president for health affairs, or a similarly designated official, who is responsible for the entire program of health-related education at the university. Ordinarily, the deans of the individual health-related schools would report to this individual.

The medical school should be organized so as to facilitate its ability to accomplish its objectives. Ordinarily, this is best effected through the development of a committee structure that is representative of such concerns as admissions, promotions, curriculum, library, and animal care. Names and functions of the committees established should be subject to local determination and needs. Consideration of student representation on all committee's is both desirable and useful.

The manner in which the institution is organized, including the responsibilities and privileges of administrative officers, faculty and students, should be clearly set out in either medical school or university bylaws.

V. Faculty

The faculty must consist of a sufficient number of identifiable representatives from biological, behavioral and clinical sciences to implement the objectives that each medical school adopts for itself. The specific fields represented do not have to be reflected in any set pattern of departmental or divisional organization although the faculty should have professional competence as well as an interest in research and teaching in the fields in which instruction is to be provided. Inasmuch as individual faculty members will vary in the degree of competence and interest they bring to the primary functions of the medical school, assignment of responsibility should be made with regard to these variations.

The extent to which the school's educational program may depend on the contributions of physicians who are practicing in the community will vary with many factors, including the size of the community and the availability of qualified teachers in the several medical specialties. The advantage to the student of instruction by such physicians, as well as by those in full-time academic service, should be kept in mind.

Nominations for faculty appointment ordinarily involve participation of both the faculty and the dean, the role of each customarily varying somewhat with the rank of the appointee and the degree to which administrative responsibilities may be involved. Reasonable security and possibility for advancement in salary and rank should be provided.

A small committee of the faculty should work with the dean in setting medical school policy. While such committees have typically consisted of the heads of the major departments, they may be organized in any way that would bring reasonable and appropriate faculty and student influence into the governance of the school. The faculty should meet often enough to provide an opportunity for all to discuss, establish, or otherwise become acquainted with medical school policies and practices.

VI. Students

The number of students that can be supported by the education program of the medical school and its resources, as well as the determination of the qualifications that a student should have to study medicine, are proper responsibilities of the institution. Inasmuch as all medical schools constitute a national resource, and all operate in the public interest, it is desirable for the student body to reflect a wide spectrum of social and economic backgrounds. Decisions regarding admission to medical school should be based not only on satisfactory prior scholastic accomplishments but also on such factors as personal and emotional characteristics, motivation, industry, resourcefulness, and personal health. Information about these factors can be developed through personal interviews, college records of academic and non-academic activities, admission tests and letters of recommendation. There should be no discrimination on the basis of sex, creed, race, or national origin.

Ordinarily, at least three years of undergraduate education are required for entrance into medical school although a number of medical schools have developed programs in which the time spent in college prior to entering medical school has been reduced even further. The medical school should restrict its specified pre-medical course requirements to courses that are considered essential to enable the student to cope with the medical school curriculum. A student preparing for the study of medicine should have the opportunity to acquire either a broad, liberal education, or if he chooses, study a specific field in depth, according to his personal interest and ability.

Advanced standing may be granted to students for work done prior to admission. The increasing diversity in medical school curricula and the greater integration of the total curriculum require that transfers between medical schools be individually considered so that both school and student will be assured that the course previously pursued by the student is compatible with the program he will enter. Otherwise, supplementation of the student's program may be necessary after he has transferred.

There should be a system for keeping student records that summarizes admissions, credentials, grades, and other records of performance in medical school. These records should reflect accurately each student's work and qualifications by including a qualitative evaluation of each student by his instructors.

It is very important that there be available an adequate system of student counselling. Such counselling is especially critical for those students who may require remedial work. Academic programs allowing students to progress at their own pace are desirable.

There should be a program for student health care that provides for periodic medical examination and adequate clinical care for the students.

VII. Finances

The school of medicine should seek its operating support from diverse sources. The support should be sufficient for the school to conduct its programs in a satisfactory manner and it should reflect, as accurately as possible, the educational, research, and service efforts of the faculty.

Special attention must be paid to providing financial aid for students since it is desirable that economic hardship not hinder the acquisition of an education in medicine.

VIII. Facilities

A medical school should have, or enjoy the assured use of buildings and equipment that are quantitatively and qualitatively adequate to provide an environment that will be conducive to maximum productivity of faculty and students in fulfilling the objectives of the school. Geographic proxmity between the preclinical and clinical facilities is desirable, whenever possible. The facilities should include faculty offices and research laboratories, student classrooms and laboratories, a hospital of sufficient capacity for the educational programs, ambulatory care facilities and a library.

The relationship of the medical school to its primary or affiliated hospitals should be such that the medical school has the unquestioned right to appoint, as faculty, that portion of the hospital's attending staff that will participate in the school's teaching program. All affiliation agreements should define clearly the rights of both the medical school and the hospital in the appointment of the attending staff. Hospitals with which the school's association is less intimate may be utilized in the teaching program in a subsidiary way but all arrangements should insure that instruction is conducted under the supervision of the medical school faculty.

A well-maintained and catalogued library, sufficient in size and breadth to support the educational programs that are operated by the institution, is essential to a medical school. The library should receive the leading medical periodicals, the current numbers of which should be readily accessible. The library or other learning resource should also be equipped to allow students to gain experience with newer methods of receiving information as well as with self-instructional devices. A professional library staff should supervise the development and operation of the library.

IX. Accreditation

The American Medical Association through its Council on Medical Education and the Association of American Medical Colleges serve as the recognized accrediting agencies for medical schools. Though retaining their individual identities, both groups work very closely in this activity through the Liaison Committee on Medical Education. To be accredited, a medical school must be approved by the Liaison Committee on Medical Education, by the Council on Medical Education and be offered membership in the Association of American Medical Colleges. This is granted on the finding of a sound educational program as a result of a survey conducted by the Liaison Committee on Medical Education. The Liaison Committee representing the voluntary professional sector includes a representative from the government and the public, and is recognized by the National Commission on Accrediting, the United States Commissioner of Education, the NIH Bureau of Health Manpower Education and various state licensure boards as providing the official accreditation for medical education.

It is the intent that newly developing medical schools should be surveyed several times during the initial years of active existence. Provisional accreditation is granted, when the program warrants, for the first two years of the curriculum and definitive action is taken during the implementation of the last year of the curriculum.

Existing medical schools are surveyed at regular intervals. Decisions regarding accreditation require assessment of the school's constellation of resources in relation to the total student enrollment. Any significant change in either should be brought to the attention of the Liaison Committee and may occasion review of the accreditation. Every attempt is made to fulfill requests for interim surveys as a service to the medical schools.

Further information about accreditation can be obtained from the Secretary, Council on Medical Education, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610, or from the Director, Department of Institutional Development, Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036.

The Batelle Columbus Laboratories have made a study of the interval between the conception of a new idea and its successful innovation as a usable product or process. It found a time lag much longer than one would expect. For example, the time lag between the idea of the heart pacemaker and its successful use was 32 years, from the year of its first conception in 1928 to its first realization in 1960.

As important as is the idea, this study emphasized the factor of technology; in 9 of the 10 innovations, a key element leading to success in practical use was the presence in the performing organization of a "technical entrepreneur" — one person who champions a particular scientific or technical activity. The importance of the technical entrepreneur was the strongest conclusion that emerged from the study. Three innovations specifically (electrophotography, video tape, and the heart pacemaker) emphasized how the technical entrepreneur persisted in the fact of the inhibiting effect of an unfavorable market analysis.

The ten innovations with the number of years required between idea and practical application are:

DURATION OF THE INNOVATIVE PROCESS FOR TEN INNOVATIONS

Innovation	*Year of First Conception*	*Year of First Realization*	*Duration, years*
Heart Pacemaker	1928	1960	32
Hybrid Corn	1908	1933	25
Hybrid Small Grains	1937	1956	19
Green Revolution Wheat	1950	1966	16
Electrophotography	1937	1959	22
Input-Output Economic Analysis	1936	1964	28
Organophosphorus Insecticides	1934	1947	13
Oral Contraceptive	1951	1960	9
Magnetic Ferrites	1933	1955	22
Video Tape Recorder	1950	1956	6
Average Duration			19.2

The "Semi-Private" Room: Semi-Barbaric?

Hans H. Neumann, M.D.

One of the most likely places to acquire infections has become the hospital. Patients remain in hospitals for shorter periods than in the past, only during the peak of their illness. Whether this stay is post-surgical or not, it is a period during which patients' susceptibility to infections is higher than ordinarily. Yet, during this period, they are more exposed to pathogens — which, understandably, are more likely to find a haven in hospitals.

With fewer communicable diseases in the community than there used to be, people have less immunity to them; then, when exposed to infections at a time when their resistance is at a low ebb, it is not surprising that they provide a fertile ground for cross-infections.

While the sources of such infections in hospitals are many, one of the more obvious ones is through the shared or semi-private room. Such rooms might better be called "semi-public."

We progressed gradually from the large wards to the four bed room, then to the two bed room which is now the most common hospital accommodation. But is this progress? When a patient in the next bed has a cough, or is developing a staph- or strep-or intestinal infection, or herpes, or even a cold, the chances of sharing these infective agents are uncomfortably high if a room is shared day and night.

From the public health angle, semi-private accommodations for really sick patients, as they are found nowadays in hospitals, should be considered a semi-barbaric thing of the past.

Aside from bacteriological considerations and their very tangible ill-effects, there are mental health aspects that can be detrimental to recovery. For many sick or post-operative patients, the peace and quiet of a single room can make a major difference. Hospitalized patients, or at least the great majority of them, have felt for years that they have been pushed into the uncomfortably close company of someone they soon learn to dread, and not necessarily for his (or her) manners: The cardiac who has a hard time breathing at night, the asthmatic, the critically ill, the dying, the patient in pain, even the constipated or the flatulent.

Mismatched personalities often demand costly transfers to other rooms, with all the possibilities of mix-up of phones, records and floating lab reports. Hospital administrators are often besieged by requests for private rooms or for transfers from one semi-private room to another when a patient becomes unable to bear his roommate. Of course, a few patients want company because they like to talk, but not one in ten likes to listen to a roommate's organ recitals.

For physicians, a single bed room means easier communication with his patient and faster reaction in times of emergencies. What appeals particularly to the physician is that conversations remain confidential, with no inquisitive person listening. Examinations are much simpler as he does not have to draw and check curtains. And he does not get the endless complaints about the patient in the other bed, along with pleading to do something about it. The physician's usual exhortation to the patient is to tolerate the situation as best he can.

For the nurses, a major advantage of single bed rooms is the easing of restrictions on visiting hours, with the possibility of family members doing many of the minor chores of patient care, for which nurses or aids are otherwise called. That means a saving of nurses' time rather than a bigger load.

For hospital administrators it means great facilitation of room occupancy as patient juggling and shifting from room to room, and psychiatric guesswork for compatability, disappear.

Would any sensible person in good health even consider accepting a motel room if he were told at the check-in desk that he would be sharing a room with a stranger, member of the same sex, matched by no acceptable method, and that such stranger might snore, smoke, smell, be uncouth or obnoxious — or, perhaps all those things? Only the sick are forced to accept such chance-companions.

Of course, occasionally the companion may turn out to be pleasant, but what are the odds? And if he is well enough to be pleasant, out he goes and in comes a new partner. There is no computer matching, and complaining, puts one in danger of being marked a "difficult patient."

In addition to all of the foregoing, the potential for law suits also exists. The JAMA in its issue of January 26, 1970 (p. 721) describes a successful suit, after a post-operative patient became infected from his roommate who had a boil. Tests showed the types of staphylococci to be identical. Such litigations may be rare, but cross infections of lesser or graver types are not rare.

DR. HANS H. NEUMANN, Director, Preventive Medicine, Department of Health, New Haven, Conn.

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There has, for some time, been a trend toward all-single-room hospitals and those hospitals that have made the change find it satisfactory beyond any doubt. As a public health need of the immediate future, the concept of "all private rooms" in the hospitals of Connecticut should be pushed at this time.

Strangely enough, cost analyses show that the construction cost of all-private-room hospitals is only insignificantly higher and the experience of existing single room hospitals is that such additional cost is retrieved in two or three years. When there is little construction of hospital additions and the occupancy rate is low, the time may be appropriate to proceed with conversions from semi-private to single rooms. Those hospitals that have turned to all-private-rooms find that the cost of running them has not increased at all. Occupancy rates are higher and the management is simpler.

From a public health viewpoint, the semi-private hospital room for today's Connecticut is as obsolete as the hotel rooms with three-strangers-to-a-bed in the days of the Old Wild West.

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182nd ANNUAL MEETING
CONNECTICUT STATE MEDICAL SOCIETY

Hartford Hilton Hotel
10 Ford Street, Hartford, Connecticut

April 30, May 1, 2, 1974

PRELIMINARY PROGRAM

TUESDAY, APRIL 30

ANNUAL MEETING OF THE HOUSE OF DELEGATES

TERRACE ROOM MEZZANINE

Presiding: Kenneth F. Brandon, Hartford, Connecticut, Speaker of the House
Timothy F. Nolan, Greenwich, Connecticut, Vice-Speaker of the House

The 1974 Annual Meeting of the House of Delegates is scheduled to be held in the Terrace Room of the Hartford Hilton Hotel, Hartford, on Tuesday, April 30, commencing at 8:30 A.M. Following luncheon, the House will reconvene to complete its business.

ROUND TABLE DISCUSSIONS

Members of the Society are invited and encouraged to participate in the Round Table Discussion or "Learning Panels." Four of these panels will be held on Wednesday, May 1, and four on Thursday, May 2. The subject, time and place for each is published in the Program that follows. The respective "Learning Panels" will be chaired by experienced physicians who will lead their groups, of not more than 15 participants, through in-depth examination of the topics assigned. Active participation in the group discussion will be limited to members who have pre-registered. (Registration Forms will be mailed to members with the Program of the meeting.) Members who have not pre-registered will be welcome to attend the Panels as observers only, within the limits of available seating capacity.

WEDNESDAY, MAY 1

SCIENTIFIC PROGRAM

MORNING SESSION

8:30 REGISTRATION — Mezzanine

ROUND TABLE DISCUSSIONS

8:45-10:00 Fourth Floor in Rooms Designated

CORONARY CARE UNIT — PITFALLS AND TRIUMPHS — Room 412
Charles N. Leach, Farmington, Connecticut

PRACTICAL ASPECTS OF WORKING UP HYPERTENSIVE PATIENT — Room 416
H. Robert Silverstein, Hartford, Connecticut

CORONARY ANGIOGRAPHY — Room 420
Marshall Franklin, Darien, Connecticut

VENEREAL DISEASE — A RAGING EPIDEMIC — Room 424
Hans Neumann, New Haven, Connecticut

TERRACE ROOM

10:25 OPENING REMARKS
Malcolm M. Ellison, New London, Connecticut; Chairman, CSMS Committee on Program of Scientific Assembly

SYMPOSIUM ON HYPERTENSION

10:30 WHY TREAT HYPERTENSION?
William B. Kannel, Framingham, Massachusetts

11:10 THE NEW PATHOPHYSIOLOGY OF HYPERTENSION
Patrick J. Mulrow, New Haven, Connecticut

11:50 CURRENT TREATMENT OF HYPERTENSION
Quentin Deming, Bronx, New York

12:30 INTERMISSION TO VISIT EXHIBITS

1:00 LUNCHEON — Cities Rooms

AFTERNOON SESSIONS

TERRACE ROOM

SYMPOSIUM ON CORONARY ARTERY DISEASE

(Can you Recognize Asymptomatic Coronary Artery Disease?)

2:00 METABOLIC PRECURSORS OF CORONARY HEART DISEASE
Robert Lees, Cambridge, Massachusetts

2:40 USE OF NEWER DIAGNOSTIC PROCEDURES IN FINDING THE PRE-CORONARY PATIENT
Lawrence S. Cohen, New Haven, Connecticut

3:30 INTERMISSION TO VISIT EXHIBITS
SECTION MEETINGS

EVENING PROGRAM

6:15 RECEPTION — Mezzanine

7:00 ANNUAL DINNER OF THE SOCIETY — Terrace Room
Inauguration of the President

THURSDAY, MAY 2
SCIENTIFIC PROGRAM
MORNING SESSION

8:30 REGISTRATION — Mezzanine

ROUND TABLE DISCUSSIONS

8:45-10:00 Fourth Floor in Rooms Designated

CERVICAL LUMPS AND BUMPS IN CHILDREN — Room 412
Ronald W. Cooke, Hartford, Connecticut

THINK OR SCAN — Practical Thoughts About Scanning — Room 416
Gerald S. Freedman, New Haven, Connecticut

PRACTICAL USE OF NEW FUNCTION THYROID TEST — Room 420
Gerard N. Burrow, New Haven, Connecticut

MODERN ANTIBIOTIC THERAPY — Room 424
George W. Lewis, Farmington, Connecticut
Richard O. Tilton, Hartford, Connecticut

TERRACE ROOM

10:30 FIFTY YEARS OF THYROIDOLOGY:
The preface to modern diagnosis and therapy of thyroid disease.
Sidney C. Werner, New York City

11:30 DIABETIC RETINOPATHY — A MAJOR CAUSE OF BLINDNESS
(What is it — What do you do about it?)
Matthew D. Davis, Madison, Wisconsin

12:30 INTERMISSION TO VISIT EXHIBITS

1:00 LUNCHEON — Cities Rooms

AFTERNOON SESSIONS
TERRACE ROOM
PROGRAM ARRANGED WITH CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

Presiding: Robert J. Touloukian, New Haven, Connecticut

SALVAGE OF THE DIABETIC FOOT

2:00 MEDICAL MANAGEMENT OF DIABETIC FOOT
Philip Felig, New Haven, Connecticut

2:20 ROLE OF THE PODIATRIST IN THE MANAGEMENT OF DIABETIC FOOT PROBLEMS
Andrew Anastasio, New Haven, Connecticut

2:40 REVASCULARIZATION OF THE DIABETIC FOOT
R. Clement Darling, Boston, Massachusetts

3:00 DISCUSSION — Questions and Answers

3:30 INTERMISSION TO VISIT EXHIBITS
SECTION MEETINGS

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Public Affairs

William R. Richards, M.D.
Executive Director
Josephine P. Lindquist
Associate Executive Director

Leonard R. Tomat
Assistant Executive Director
Scientific Activities

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1974 Annual Meeting of the House of Delegates is scheduled to be held in the Terrace Room of the Hartford Hilton Hotel, Hartford, on Tuesday, April 30. Commencing at 8:30 A.M. Following luncheon, the House will reconvene for the completion of its business.

Sidney L. Cramer, President
Kenneth F. Brandon, Speaker of the House
Louis C. Backhus, Secretary

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society Provides that:

All resolutions to be considered as regular business at any regular meeting of the House of Delegates must be in the hands of the Speaker not later than seventy-two hours before the opening of that meeting. All resolutions and recommendations published in the official agenda distributed to the members of the House prior to the meeting at which action is to be taken shall be considered as regular business. Resolutions presented later than seventy-two hours before the opening of a meeting will be referred for consideration as regular business by the House only when they are presented by the Council or accepted for consideration by majority vote of the delegates present. Any resolution which does not qualify in accordance with the aforesaid provisions for consideration as regular business may be accepted for action by a majority vote of the delegates present and, if so accepted, shall be referred at once by the Speaker to a reference committee. Any such reference committee shall consider resolutions referred to it and shall report, with recommendations to the House before adjournment of the meeting.

PROPOSED AMENDMENTS TO THE BYLAWS

The following proposed amendment to the Bylaws was presented to the House of Delegates on December 13, 1973 and was tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, this amendment will be published in Connecticut Medicine "on one or more occasions prior to the next meeting . . . at which meeting the amendment shall be taken off the table and acted upon by the House of Delegates."

SUBJECT: PROPOSED AMENDMENT TO THE BYLAWS RE DUES

Introduced by the Council

PURPOSE

To reduce CSMS membership dues for physicians becoming members in the last half of a fiscal year (less than six months of membership).

AMENDMENT

ARTICLE XII-DUES — Section 1. Prescription (Delete underlined word and add word in capitals.)

Annual dues for Active Members shall be prescribed for the ensuing calendar year in an amount recommended by the Council and approved by the House of Delegates and shall be an equal per capita assessment upon each Active Member except that physicians who become Active Members during the latter half of a fiscal year will be assessed one-half QUARTER of the annual dues for that fiscal year.

Summary of Actions
Council Meeting

Thursday, January 17, 1974

I. Attendance

Present in addition to the Chairman, Dr. D. A. Grendon, and the Vice Chairman, Dr. C. W. Johnson, were: Drs. Cramer, Root, Jr., VanSyckle, Spitz, Backhus, Brandon, Fabro, Hess, Bradley, Ragland, Jr., James, Pelz, Krinsky, Dambeck, Roch, Kamens, Harkins, Magram, Mendillo, Barrett and Klare.

Also present were: Mrs. Lindquist, Mr. Tomat, Mr. Sweeney and Dr. Richards.

Absent were: Drs. Nolan, Granoff, Gardner, Nemoitin, Hecklau, Canzonetti, Rubinow, Freedman and Hastings.

II. Routine Business

Approval of Minutes

As published and distributed, it was VOTED to approve the minutes of the meeting of December 13, 1973.

Life Memberships

It was VOTED to approve applications for Life Membership received from the following eligible Active Members:

Josephine Evarts, Millerton, N.Y. (L) 1/1/74.
William Finkelstein, 195 Grove Street, Waterbury 1/1/74.
Joseph H. Kott, Cobble Road, Harwinton (L) 1/1/74.
Rocco G. Lapenta, 135 Holcomb Street, Hartford (H) 1/1/74.
Leonard Parente, 185 Braeside Drive, Hamden (NH) 1/1/74.
Francis A. Read, 10 Crescent Road, Riverside (F) 1/1/74.
Robert J. Ruby, 170 Hillside Avenue, Waterbury (NH) 1/1/74.
Wilson Fitch Smith, 25 Bainbridge Road, West Hartford (H) 1/1/74.

Date of Next Meeting

The Chairman scheduled the next meeting of the Council for Wednesday, February 13, 1974.

III. Old, New and Special Business

Election of Student Members

It was VOTED to elect to Student Membership six Connecticut residents who are enrolled in medical schools in the United States. The names of those elected will be published in an early issue of the Journal.

Resignations, Appointments, Etc.

(a) *Committee on Accident Prevention and Emergency Medical Services:* It was VOTED to accept, with regret, the resignation of Edward A. Rem, New Canaan, from membership on the Committee.

(b) *Ad Hoc Advisory Committee on Health and the Energy Crisis:* It was VOTED to confirm the President's appointment of Thomas J. Godar, Hartford, to represent the Society on this Ad Hoc Advisory Committee. The Committee was formed at the direction of the Governor and is chaired by the Commissioner of Health. The name of the Committee indicates its purpose.

(c) *Committee on Peer Review Systems:* It was VOTED to appoint additional members to the Committee, for the term 4/73-4/74, as follows: Daniel Hamaty, New Haven; Allyn B. Dambeck, Tolland; Herbert A. Kaufmann, Middletown; David C. Cavicke, New London; Marvin Garrell, Fairfield; E. Stuart McCleary, Wallingford; Andrew J. Canzonetti, Waterbury (HCMA); and Guy W. VanSyckle, Danbury.

N.B.: In conjunction with the above action, it was VOTED that, on all future Council agendas, an allocation of time be made for reports of the Committee on Peer Review Systems, whether published or oral.

(d) *Judicial Committee:* It was VOTED to appoint E. Tremain Bradley, Norwalk, to at-large membership on the Committee, replacing Stevens J. Martin, Hartford, deceased, for the balance of the term 1971-75.

(e) *Media Committee, Connecticut Drug Council:* It was VOTED to request the Chairman and the Executive Director to appoint a qualified, interested and available member of the Society to serve as a CSMS representative on this Committee. The CDC is a state agency, and the function of the Media Committee is to "plan and implement a continuing, coordinated, statewide media campaign for the prevention of drug abuse and misuse." Meetings are held on the first Thursday of each month, at the State Department of Mental Health library, Hartford, starting at 9:00 a.m.

(f) *Committee on VD Education and Control:* The House of Delegates having directed (12/13/73) that the Ad Hoc Committee on VD Education and Control be abolished, and that the Council establish a standing committee of the same name, it was VOTED to appoint the members of a new Committee on VD Education and Control for the balance of 1973-74 term as follows: George Kraus, Greenwich, chairman; Joseph J. Bellizzi, Hartford; Edward R. Browne, Willimantic; Herman H. Glassman, Hartford; Seymour I. Kummer, Rockville; Louis O. LaBella, Middletown; Hyman A. Levin, New Haven; Kenneth A. Nesbitt, Torrington; Hans H. Neumann, New Haven; and George F. Thornton, Waterbury.

(g) *State Advisory Committee on "Right to Read Consortium:"* At the request of the Acting State Commissioner of Education, it was VOTED to nominate Malcolm S. Roth, Hartford, an ophthalmologist, and Edward F. Hecklau, Greenwich, a pediatrician, for possible service on an advisory committee to this Consortium as a representative of the Society. The Acting Commissioner indicates that professional input would be valuable.

(h) *Ad Hoc Advisory Committee to CSMS Member of Commission on Hospitals and Health Care:* At the request of Sidney L. Cramer, Hartford, who is serving as a CSMS representative on the subject Commission, it was VOTED to authorize the President (Dr. Cramer) to appoint a five-man ad hoc committee of his choosing "with whom he might review previous CSMS policy, talk of our present problems and formulate ideas for the future."

(i) *Editorial Committee of Journal:* It was VOTED to appoint Merrill B. Rubinow, Manchester, to membership on the Committee for the balance of the term 1973-74.

Resolution re CMS-CBC Programs Coordination

It was VOTED to accept for filing a resolution introduced by Sidney L. Cramer, Hartford, which advocated that the Society express favor and support for the coordination of the benefits programs of Connecticut Medical Service and Connecticut Blue Cross to achieve comprehensive coverage for subscribers to the two prepayment plans. It was further VOTED, with minor amendment, to adopt the resolution as follows:

RESOLVED: That the Council of the Connecticut State Medical Society express favor and support for coordination of the programs of Connecticut Medical Service and Connecticut Blue Cross to the end that a coordinated prepayment plan be made available to the public which could offer to subscribers comprehensive benefits coverage of both in-hospital and ambulatory care services, eliminate problems of duplicative or overlapping coverage, allow patients and physicians free choice in the selection of providers and make unnecessary any differentiation between hospital and non-hospital providers; and be it further

RESOLVED: That copies of this resolution be made available to all parties whom the Council deems to have concern with the subject of the resolution.

Finally, it was VOTED to apprise the following of this action: The State Insurance Commissioner; Connecticut Medical Service; Connecticut Blue Cross; the members of the General Assembly (personalized letters to the members of the Committee on Insurance); and to the Connecticut communications media, including the Associated Press and/or the United Press.

Proposal re "PSRO Newsletter"

It was VOTED to accept for filing a communication received from Guy W. VanSyckle, Danbury, which proposed that informational and educational materials on PSRO be prepared by the Committee on Peer Review Systems for publication and distribution to the membership of the Society. It was further VOTED to request the chairman of the Committee on Peer Review Systems to submit monthly for publication in the Journal a review of pertinent developments re implementation of the PSRO legislation, both locally and around the nation, and to make suitable arrangements with the Editor of the Journal concerning the modus operandi of such publication.

Reports — Fiscal Subcommittee

Actions were taken on reports of the Fiscal Subcommittee as follows:

(a) *AMA-AMPAC Public Affairs Workshop, Wash-*

ington, D.C., 3/15-17/74: It was VOTED to authorize the attendance of one CSMS representative at this Workshop, and to approve the recommendation of the FS that up to $150 be allocated to reimburse the representative who attends for usual expenses. Without vote, John J. Mendillo, New Haven, was designated to represent the Society at the subject Workshop.

(b) *Committee on Public Relations — Restaurant Placemat Project:* It was VOTED to approve this project of the Committee on Public Relations for implementation, and to approve the recommendation of the FS that $1,260.00 be allocated to the PR Committee with which to implement said project.

(c) *Committee on Aging — Workshop-Conference on Care of the Elderly:* It was VOTED to approve a proposal of the Committee on Aging that a subject workshop-conference be planned and conducted with the endorsement of the Society, and to approve a recommendation of the FS that the sum of $500 and "administrative support for registration, etc." be contributed by the Society in support of such workshop-conference.

(d) *AMA National Leadership Conference, Chicago, 1/25-27/74:* It was VOTED to authorize James H. Root, Jr., Waterbury, to attend this Conference as a representative of the Society, and to authorize Dr. Root's reimbursement of usual expenses in attending in an amount of up to $325.00, as recommended by the FS.

(e) *Relocation and Restoration of House of William Beaumont, M.D., Lebanon, Ct.:* It was VOTED to contribute CSMS support to the subject restoration and relocation of the Beaumont house in Lebanon, Ct. as follows: (1) Grant CSMS endorsement to the project; (2) Approve the submission of articles about the project to the Journal and/or other CSMS publications; (3) Contribute $500 of CSMS funds to the project on a one-time basis; (4) Distribute promotional (fund appeal) literature with CSMS mailings on a "when available" basis.

Report — Charles Polivy, Hartford

It was VOTED to receive for filing a report submitted by Dr. Polivy on his attendance at the first meeting (12/12/73) of the Professional Advisory Committee (on medical assistance programs) to the State Commissioner of Finance and Control held since 1970. The Commissioner appointed Dr. Polivy to membership on the PAC, upon nomination by the Council. Since he expressed interest in being apprised of any present goals or policies of the Society which have relevance to the work of the PAC (principally payment schedules for professional medical service providers), it was further VOTED to request Leo P. Giardi, Hartford, chairman of the CSMS Liaison Committee with the State Welfare Department and recently appointed to membership on the Medical Advisory Committee to the Welfare Commissioner, to maintain continuing liaison with Dr. Polivy and with the Council concerning developments and/or plans under consideration in regard to Medicaid and related medical assistance programs.

Communication re Press Reporting of Medicaid Payments

James H. Root, Jr., Waterbury, brought to the attention of the Council a strong protest voiced by a Bridgeport physician about the manner in which the media, particularly newspapers, reported the total payments made to physicians by the Welfare Department for services rendered to Medicaid beneficiaries during a calendar year or other twelve-months period. Recognizing that, by law, the Welfare Department is required to make this information public, and recalling that on previous occasions news reporters had passed over explanatory materials furnished by the Department in favor of reporting total payments only, the Council voted to request Staff to prepare a "white paper" on the subject of media reporting of Welfare Department figures on Medicaid payments made to physicians, and to send copies thereof to newspaper editors, associations of editors, etc. who may have jurisdiction over such reporting.

Final Report on CUPIS, Inc.

It was VOTED to accept for filing a report submitted by Ronald S. Beckett, Hartford, which informed the Council that a "terminal meeting" of the Connecticut Utilization and Patient Information System (CUPIS) was held on 11/30/73) and that the program has been closed out. It was further VOTED to thank Dr. Beckett for the report and for his past service to the Society as a CSMS representative to the program.

Follow-up Report on Letters to Legislators

It was VOTED to accept for filing a copy of the letter that was sent to the members of the General Assembly which asked for a "full, fair and in-depth hearing" by the legislature on the professional qualifications of the Commissioner of Health vs. the qualifications prescribed by statute, and a report of Staff that the responses from legislators indicated that the holding of such a hearing may be anticipated. It was further VOTED to designate the Chairman of the Council, Dr. Grendon, to present a

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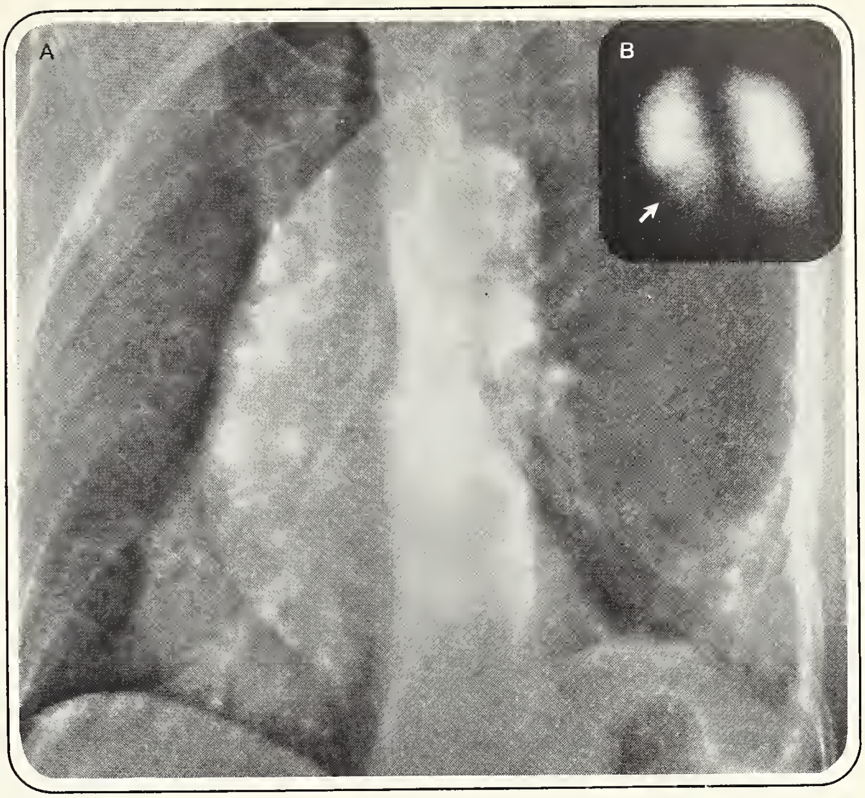

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statement on behalf of the Society at such a hearing, and to request the Society's legislative counsel to assist in making plans for Dr. Grendon's appearance at the hearing.

N.B.: The foregoing is a summary of the proceedings and actions of the Council on January 17, 1974. Detailed minutes of the meeting are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.

STUDENT MEMBERS

Six student members were elected to the Society:

Joseph C. Fantone, III, 122 Tredeau St., Hartford
University of Connecticut — Class of 1977
Pre-Med: Tufts University
Parent: Joseph C. Fantone, Jr.

Stephen L. Leighton, 2 Auburn Road, West Hartford
New York Medical College — Class of 1976
Pre-Med: Dartmouth College
Parent: Helene L. Leighton

John P. Opalacz, 564 Boston Road, Middletown
St. Louis University School of Medicine — Class of 1977
Pre-Med: Holy Cross College
Parent: Frank J. Opalacz

Benjamin Tuttle, 16 Lorraine St., Hartford
University of Connecticut — Class of 1977
Pre-Med: Harvard College
Parent: Mark Tuttle

Karen Zabrensky, 577 Maple Hill Ave., Newington
Albert Einstein College of Medicine — Class of 1976
Pre-Med: Bard College
Parent: Henry Zabrensky

Michael R. Zile, 449 Washington St., Forestville
Rush Medical College — Class of 1977
Pre-Med: Knox College
Parent: Robert B. Zile

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President-Elect
Mrs. George Roch, Windham

First Vice-President
Mrs. A.W. Thomson, Jr., Middlesex

Second Vice-President
Mrs. David O'Keefe, Hartford

Recording Secretary
Mrs. Robert Gillcash, Windham

Corresponding Secretary
Mrs. Herbert Weisberg, New Haven

Treasurer
Mrs. David Peterson, New London

Eastern Regional Workshop

Every autumn when children return to school and doctors to offices, auxiliary wives attend regional workshops. The Eastern Region includes fifteen states. Eastern Regional vice-president, Mrs. Norman (Betty) Gardner of East Hampton, announced recently that this region gained 579 new members during the 1972-73 year, 66 of whom were in Connecticut. Betty's interest in auxiliary work is contagious and as she flies from state to state she creates an epidemic of enthusiasm.

Connecticut delegates to the two-day Boston Workshop were president Roberta Czarsty, president-elect Peggy Roch, membership chairman Zara Thompson, AMA-ERF chairman Aileen Barker, health education chairman Emma Harwood and health services chairman Sylvia Katz. Dr. Joseph Czarsty loaned his station wagon for the Sunday afternoon trip. Auxiliary journeys are always conducted according to proper parliamentary procedure and motions were carried to stop enroute for several interesting fall attractions. Sudden arrival at the Albany-Worcester exits on the Massachusetts Turnpike necessitated an instantaneous vote on choice of direction. This resulted in enjoyment of the autumnal Berkshires toward Albany before being rescinded. A substitute motion was passed to look for the Copley-Plaza Hotel by way of Worcester. We arrived there too late for "Getting Acquainted" but in time for "Dinner on the Town" at Anthony's Pier Four.

We attended lectures for the next day and a half. Workshop speakers emphasized that doctors' wives must continue to be interested, informed and involved because their husbands do more than diagnose and treat patients. Because today's practice of medicine has socioeconomic, educational and political ramifications the need for medical auxiliary understanding and support is increased dramatically.

Jere W. Annis, M.D., a member of the Board of Trustees, answered questions concerning medical school enrollment for 1973: 11,000 medical school graduates, 14,000 medical school admissions, 50,000 medical students, 6,000 of whom are women. He said that there were 2,400 medical bills introduced in Congress during the last session and sympathized with legislators' dilemmas when well people say doctors should concentrate on keeping people well and sick people are demanding more time. He believes medical distribution is a *social* problem and said, "Do not put physicians in slum areas, but get rid of slums."

The AMA Educational and Research Fund Committee sponsored our Monday evening dinner. There was a busy exchange of gifts, money and fund-raising ideas. The Dean of Boston University Medical School and two of his feminine students discussed the importance of AMA-ERF loans. Aileen Barker reported that the Connecticut Auxiliary raised over $6,000 last year and will be credited with a greater amount this year with the inclusion of Medical Society contributions. This year's national goal is ten dollars a member or one million dollars.

Workshop attendance reached almost 100% because doctors' wives understand the importance of being trained in all aspects of community leadership —group efforts, intergroup action and individual volunteerism. The Massachusetts Medical Society is aware of the dollor and cents value of the community services and public relations impact of its auxiliary and gives their 1,700 auxiliary members $10,000 a year to finance their programs. Our Connecticut delegation returned home with new goals and ideas for beginning our thirtieth year.

In Memoriam

Atkins, Samuel Maurice, Tufts Medical School, 1922 Dr. Atkins was a practicing radiologist in the New Haven area since 1926 until his retirement in October, 1973. He was a past president of the Waterbury Medical Association, a member of the New Haven Medical Association, a past president of the Radiology section of the Connecticut Medical Association and a past president of the New England Roentgen Society. Dr. Atkins died December 7, 1973, at the age of 73.

Campbell, Hugh B., University of Pennsylvania, 1909. Dr. Campbell was a practicing physician in the New London area since 1912 until his retirement in 1955. He founded Uncas-on-Thames Hospital in Norwich and was a pioneer in tuberculosis research and developed effective lung surgery. He was a member of the New London County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Campbell died January 16, 1974, at the age of 88.

Piasta, Peter F., Boston University, 1924. Dr. Piasta was a general practitioner in the Middlesex area since 1926. He was a veteran of World War I having served with the U.S. Army. He was a member of the Middlesex County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Piasta died December 30, 1973, at the age of 76.

Powell, Wilson, Queens University, Canada, 1924. Dr. Powell was a pediatrician in the New Haven area since 1925. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Powell died in Sarasota, Florida, at the age of 80.

Rosenberg, Harold A., Yale Medical School, 1930. Dr. Rosenberg was a pediatrician in the New Haven area since 1930. Dr. Rosenberg was a former president of Waterbury Hospital medical staff, a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Rosenberg died in North Miami Beach, Florida, at the age of 67.

Smith, Thayer A., Columbia University, 1914. Dr. Smith was a Captain in the Marine Corps 1917-1919. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Smith died May 5, 1973, at the age of 83.

Welt, Louis, Yale Medical School, 1938. Dr. Welt was an internist in the New Haven area since 1940. He had served as a Major during World War II in the U.S. Army. Dr. Welt did extensive research on kidney diseases and was chairman of the Department of Internal Medicine at the Yale University School of Medicine. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society, and the American Medical Association. Dr. Welt died January 16, 1974, at the age of 60.

The Relationship of the Physician to Media of Public Information

Many people, literate and well educated, do not possess a special knowledge of medicine. Medical books and journals are not always easily accessible or readily understandable.

The medical profession considers it ethical for a physician to meet the request of a component or constituent medical society to write, act or speak for general readers or audiences. On the other hand, it may often happen that the representatives of popular news media are the first to perceive the adaptability of medical material for presentation to the public. In such a situation the physician may be asked to release to the public some information, exhibit, drawing or photograph. Refusal to release this material may be considered a refusal to perform a public service, yet compliance may bring the charge of self-seeking or solicitation.

An ethical physician may provide appropriate information regarding important medical and public health matters which have been discussed during open medical meetings or in technical papers which have been published and he may reveal information regarding a patient's physical condition if the patient gives his permission, but he should seek the guidance of appropriate officials and designated spokesmen of component or constituent medical societies. Spokesmen should be empowered to give prompt and authoritative replies and a list should be issued which identifies them and discloses the manner in which they may be reached. These provisions are made with full knowledge that the primary responsibility of the physician is the welfare of his patient but proper observation of these ethical provisions by the physician concerned should protect him from any charge of self-aggrandizement.

Scientific articles written concerning hospitals, clinics or laboratories which portray clinical facts and technics and which display appropriate illustrations may well have the commendable effect of inspiring public confidence in the procedure described. Articles should be prepared authoritatively and should utilize information supplied by the physician or physicians in charge with the sanction of appropriate associates.

When any sort of medical information is released to the public, the promise of radical cures or the boasting of cures, or of extraordinary skill or success is unethical. — *Opinions and Reports, Judicial Council of the A.M.A.*

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Tetanus Prophylaxis in Puncture Wounds

Faust and his associates report that there are two basic themes that must be stressed in the management of puncture wounds: local wound cleansing and debridement and prophylaxis of tetanus. It is well known that the deep, several-days-old puncture wound from the street or garden is the most "tetanus-prone" wound. Since such minor wounds cause about one-half of all the reported cases of tetanus, proper care is important.

The authors treat puncture wounds by converting new closed contaminated wounds into open, relatively clean wounds. If the patient is seen late, as much unroofing as possible is done. The wounds are washed and irrigated thoroughly. If the puncture wound has not been deep enough after excision of the skin to "open up" the wound, the area is covered with a dressing and the patient is instructed to soak the wound as often as possible for a few days. If the puncture wound is deep and has necessitated more extensive debridement, packing is placed into the incision and left for a few days.

All patients are considered for active immunization with alum tetanus-diphtheria toxoid (adult type). The authors do not consider toxoid necessary if the patient has received an adequate immunizing dose of alum toxoid within the past 10 years.

Alum tetanus toxoid is one of the most long-acting of antigenic immunologic stimuli, yet tetanus itself produces no permanent immunity. The first of a series of toxoid injections will not protect against tetanus but it should never be omitted. Even though the patient may have forgotten that he had the shot, a single prior toxoid injection received many years previously will be "remembered" and a protective titer of antitoxin can be expected in nine days or so after this current second injection. All patients who receive such an injection are encouraged to return in about one month, and again in about one year, for completion of the immunization series.

The authors never use passive immunization with tetanus antitoxin (TAT) prophylactically in any individual known to have been previously actively immunized despite the amount of time that has passed since the immunization.

Passive immunization is used only in the unimmunized patient whose wounds are considered to be tetanus-prone. These are old or infected wounds in which the adequacy of debridement cannot be definitely ascertained. For these patients, tetanus immune globulin (human) is chosen. Equine TAT should be used only if human TAT is unavailable and then only if the danger of tetanus outweighs the risk of allergic reaction. Such reactions are known to occur in at least 7 to 10 percent of patients in whom it is employed.

With tetanus-prone wounds in the unimmunized patient, the authors use active-passive immunization (250 units of human TAT and 0.5 cc. of alum toxoid in the opposite arm). They have used TAT more liberally since the human product has become available.

The authors note that the essence of tetanus management is thorough, prompt debridement. Active immunization should be maintained in patients previously immunized. In the unimmunized patients with infected old puncture wounds, a combined active-passive immunization program should be used. In the unimmunized patients whose fresh puncture wounds have been converted to clean, open wounds through adequate debridement, active immunization is begun and passive immunization is not necessary. *(American Surgeon,* April 1972, p. 198). *Reprinted by Permission.*

Cost of Educating Medical Students

The total cost of educating a medical student in 1972 ranged from $16,000 to $26,000 a year in twelve selected medical schools, the Association of American Medical Colleges reported recently.

Direct instructional expenses accounted for about forty per cent of the total educational costs for an undergraduate medical student. Research, clinical activity and administrative and professsional activities accounted for the remainder.

The association said a study committee selected the twelve institutions because they presented a spectrum of different educational programs. The report, however, said it was not suggesting that the costs at the nation's 100 other medical schools would fall in this range.

Six of the schools examined are public and the other six are private institutions. All are part of a university and the number of students in each school ranged from 300 to 891.

Large variations in medical school research expenses accounted for much of the difference in the total educational costs. The cost of research at the schools ranged from $2,700 to $10,000 annually.

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The Bovine Heterograft in Portacaval Shunts

Morris D. Kerstein, M.D., Joseph W. Lewis, M.D.
C. Francis Roe, M.D. and Carl J. May M.D.

ABSTRACT — **The bovine heterograft has successfully been used in an "H" graft portacaval shunt for the treatment of massive G.I. bleeding secondary to esophageal varices and portal hypertension. The bovine heterograpt is a valuable alternative when local anatomy does not permit standard side-to-side decompression. An inner diameter greater than one centimeter is required for adequate portal decompression.**

It is not unusual that the planned portacaval shunt for bleeding esophageal varices cannot be done because of abnormal anatomic relationships. The authors wish to report three cases of successful use of a bovine heterograft interposition between the inferior vena cava and the portal vein.

In spite of the controversies concerning decompression of the portal venous system because of portal hypertension, variations of portacaval shunt continue to be the most successful emergency surgical measure in controlling gastrointestinal hemorrhage secondary to varices.

Because of the technical inability to join the portal vein and inferior vena cava side-to-side directly, numerous alternatives have been suggested. These include a panel graft of autogenous saphenous vein, a tubular prosthesis of knitted dacron or teflon, or a segment of autogenous vena cava. Other choices would, of course, include meso-caval shunt and the many splenorenal variations.

The authors do not wish to discuss the controversy of portal venous decompression, but rather to suggest alternatives in technically challenging problems. End-to-side anastomosis can technically, usually be accomplished; side-to-side anastomosis was used here because of retrograde portal vein flow.

Case Reports

Case I

A 53 year old widowed white woman with biopsy proven Laennec's cirrhosis and esophageal varices entered the WHVAH on 13 March with Jaundice, ascites, and increasing abdominal girth. She admitted recently taking large amounts of alcohol. Physical examination revealed deeply icteric sclerae and multiple "spider" angiomata. The abdomen was tense and protuberant with diffuse moderate tenderness. The umbilicus was purplish in color; the liver was palpated 13 cm. below the RCM; the spleen was not enlarged.

The umbilical area underwent necrosis, spontaneously draining ascitic fluid through the hernia (Flood Syndrome). Analysis of the fluid revealed 70% polys, 30% lymphs, 1.2gm. % protein. Peripheral smear revealed a WBC of 4400, platelets 80,000. She showed more signs of peritoneal irritation and Keflin (6 g/day) and kanamycin (0.5 gm/q12 h) were begun. Over a two week period a rising BUN, increasing weight, and decreasing urine output made management problems difficult.

On 1 April she vomited 1500 cc. of blood, which conservative treatment, including lavage and transfusion, did not control. Endoscopy confirmed variceal bleeding at 41 cm.; intra-arterial vasopressin was started with a catheter in the superior mesenteric artery. Bleeding was controlled and the vasopressin stopped. On 3 April she rebled but insertion of an arterial catheter and vasopressin did not stop the bleeding. So, a Blakemore tube was inserted. The next morning she underwent an "H" graft, portacaval shunt using bovine heterograft (9.5 mm). Seventy-two hours postoperatively she rebled with a progressive downhill course ending in death on the tenth postoperative day. Autopsy confirmed the diagnosis of Laennec's cirrhosis and a patent portacaval shunt, with the suggestion that the continued site of bleeding was gastric varices.

Case II

A 70 year old white male was admitted with a three to four day history of melena and hematemesis. He was a known chronic alcoholic free of cirrhosis until about one year before this admission when he developed ascites and splenomegaly. Liver biopsy done then revealed advanced Laennec's cirrhosis. Three months before this admission, he was admitted

---

DR. MORRIS D. KERSTEIN, staff surgeon, West Haven Veterans Administration Hospital; assistant professor of surgery, Yale University School of Medicine.

DR. JOSEPH W. LEWIS, chief resident in surgery, Yale University School of Medicine.

DR. C. FRANCIS ROE, staff surgeon, assistant professor of surgery, Yale University School of Medicine.

DR. CARL J. MAY, staff surgeon, West Haven Veterans Administration Hospital; associate professor of surgery, Yale University School of Medicine.

Reprint requests to: Dr. Kerstein, Veterans Administration Hospital, West Spring Street, West Haven, Conn. 06516.

to the hospital for control of his ascites, but without satisfactory resolution. Two weeks before this admission, he vomited coffee-ground material. Three days before this admission, he vomited again and passed tarry stools.

Physical examination revealed no icterus. He was alert and oriented with no asterixis. The abdomen was protuberant with fluid wave and a prominent superficial venous pattern. Blood pressure was 110/70 with pulse rate 92.

Leukocyte count was 6700; hematocrit 23%, platelet count 280,000, BUN 57, prothrombin time 17 seconds with a control of 12. Bilirubin level, SGOT and serum amylase were normal.

He was transfused; bleeding stopped spontaneously. Two days after admission, it started again. He was taken to the x-ray department where the superior mesenteric artery was catheterized and a Pitressin infusion started. Bleeding stopped, but when the infusion was slowed, it restarted, poorly controlled with the vasopressor infusion. A Blakemore tube then was passed and a tracheostomy performed. After two and a half days of intermittent traction, the balloon was deflated; the patient at that time was in satisfactory condition. Late that evening, he began to bleed again; the Blakemore tube was reinflated. The next day, a portacaval shunt was done using a Bovine "H" graft between the portal vein and inferior vena cava. Pre-shunt portal pressure was 43 cm. saline. Eleven liters of ascitic fluid were present at surgery. Postoperatively, he did well, but the next day he began to bleed massively, not controlled with the Blakemore tube. A diagnosis of stress ulcer was made and the patient returned to the operating room. Re-exploration revealed the shunt to be open. A gastrectomy was performed; generalized oozing of the duodenal mucosa could be seen, but no other bleeding points. It was then decided to do a 60% gastrectomy. Postoperatively, the patient remained stable for several hours. But that evening, he developed ventricular tachycardia followed by cardiac arrest. Resuscitative measures were not successful. An autopsy revealed acute gastritis, the gastric mucosa was severely congested, cobblestoned with an accentuated rugal pattern, with a small mucosal ulcer at the lower end of the esophagus. The shunt was patent.

Case III

The patient was a 50 year old white female ex-bartender with biopsy proven Laennec's cirrhosis, admitted to the WHVAH with a diagnosis of bleeding esophageal varices. She had been a heavy drinker for fifteen years, drinking greater than a quart of vodka daily during the preceding year. Though she had had an upper gastrointestinal bleed four months earlier, a portal decompressive procedure was not considered feasible, allegedly because of an altered ammonia tolerance test.

She had smoked three packs of cigarettes daily for many years. Review of other systems was non-contributory. Physical examination revealed a jaundiced female with a rectal temperature of 101°. Palpable liver dullness was noted 3 cm. below the right costal margin. Serum ammonia level was 196 micrograms %. Other pertinent laboratory studies were bilirubin 2.5, total protein 5.5, albumin 2.4, prothrombin time 75%, and hematocrit 27%.

Endoscopy supported the diagnosis of variceal bleeding; intra-arterial vasopressin was given to control the hemorrhage. When she was hemodynamically stabilized, an "H" graft paneled bovine portacaval shunt with an inner lumen diameter of 1.5 cm. was done. On either side of a clamped portal vein the venous pressure was 42 cm. saline. At the end of the operation the pressure was 25 cm. saline.

Postoperatively, she accumulated ascites. She also experienced another U.G.I. hemorrhage on the fifth postoperative day. Endoscopy suggested a duodenal ulcer as the cause; an antrectomy and vagotomy with Billroth II anastomosis was done. Because the patient rebled, extensive angiographic studies were done, revealing a patent portacaval H graft shunt. Pressure recordings revealed superior vena cava 17 cm., right atrium 12 cm., inferior vena cava at the level of the diaphragm 12, the hepatic inferior vena cava 28, renal level 34, at the bifurcation 36, and in the portacaval anastomosis 39. The radiologist suggested the discrepancy of pressures at the diaphragmatic level indicated a functional, if not anatomic obstruction at this point. The inferior venocavagram demonstrated the aneurysm of the vena cava at the junction of the portacaval anastomosis and almost complete occlusion of the hepatic inferior vena cava. The *hemiazagous* system had been used to compensate for pressure discrepancies in this high grade obstruction.

The terminal phase was begun with onset of renal failure and the hepatorenal syndrome. An autopsy confirmed Laennec's cirrhosis, a patent shunt, splenomegaly (450 gm.), renomegaly (left 280 gm., right 310 gm.), and pulmonary congestion. The liver in fact encroached upon the inferior vena cava; the aneurysm was present below.

Discussion

The authors do not desire to compare the success of side-to-side, end-to-side or other portal venous decompressive procedures. Rather, they present an alternative method of shunting here, when the de-

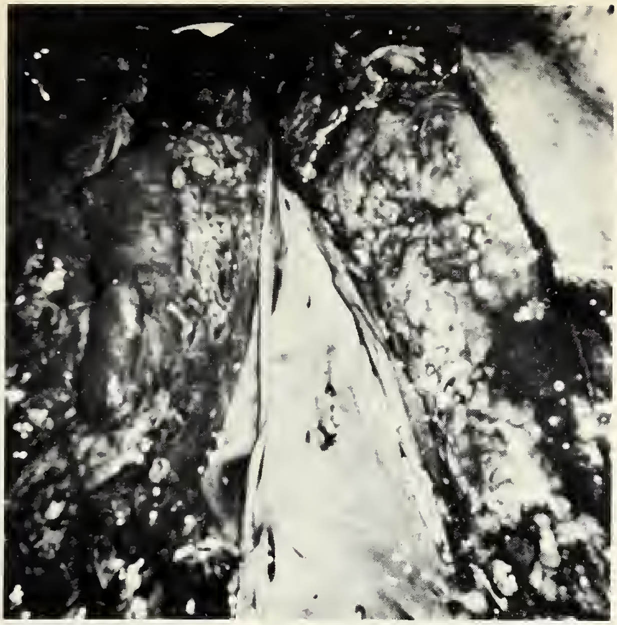

Figure 1
Case III: Patent portal caval anastomosis with proximal occlusion of the IVC by regenerating liver.

sired decompressive measures are technically not feasible. Extensive dissection may finally allow approximation of the portal vein and inferior vena cava; however, undue tension and stoma deformity may result in thrombosis or aneurysm formation from an ineffective shunt. Use of the bovine heterograft as an "H" graft can alleviate the numerous shortcomings. Utilization of autogenous venous tissue requires prolonged anesthesia time, tedious, technically demanding surgery, the discovery of inadequate veins or their absence because of ligation and stripping; all of this is often found in patients with severely compromised liver function studies, and bleeding and clotting abnormalities. The biological arterial prosthesis of bovine carotid origin prepared by enzymatic treatment followed by tanning and sterilization has proven successful in early investigation.

The concept of the "H" graft or vascular interposition was first described in 1951 by Reynolds and Southwick.[1] They reported use of autogenous azygous vein as an interposition between the inferior vena cava and the portal vein. In 1953 Theron commented on the shortcomings of venous grafts derived from the superficial femoral vein,[2] the problem of narrow diameter, the need for greater than a one centimeter diameter to adequately decompress the portal venous system and shunt the flow is well accepted.[3] Earlier work reveals success with both homologous vein and woven teflon,[4 5] though with only a short follow-up period. Subsequent demise of our first two patients was probably due to inadequate decompression since the shunts were patent at autopsy, though their diameter was not greater than 1 centimeter, in fact less than 0.6-0.8 cm. The maximum outer diameter for proper decompression of bovine grafts presently available is 9.5 mm. The lumen is therefore, inadequate for decompression. Paneling of the bovine heterografts may be necessary. The third patient had an adequate paneled "H" graft lumen (1.5 cm.) at insertion and autopsy; yet she expired because of poor decompression secondary to the encroachment of regenerating liver nodules on the inferior vena cava.

Prosthetics have a long history of failure as vein replacements. Work by Stansel in 1964 has shown that arterolization via a femoral arteriovenous shunt will improve flow and, therefore, maintain the patency of an IVC graft.[6] Recent work utilizing bovine heterografts and A-V shunts has confirmed this work; the high pressure and high flow characteristics will adequately maintain shunt patency. The situation is duplicated in patients with portal hypertension. The difference in flow and pressure gradient is the important factor in shunt patency along with the size of the shunt. All deaths in our series are probably attributable to inadequate decompression. Patients I and II had decompressive shunts with small luminal diameters; patient III had an adequate paneled shunt lumen yet also died because of inadequate decompression. Autopsy revealed all shunts to be patent.

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Heterotopic Gastric Mucosa of Ileum Causing Acute Intussusception

Yoichi Katsube, M.D., Neil Fremont Lebhar, M.D.,
Anthony Carmen Noto, M.D., and William Hughes, M.D.

ABSTRACT — **An unusual case of acute intestinal intussusception in a six-year-old child secondary to a leading point of ileal heterotopic gastric mucosa is presented.**

The etiology for the majority of cases of intestinal intussusception remains unexplained for the present. The incidence of idiopathic intussusception ranges from 81 to 93 percent in the literature. Tumors of the small bowel, when present, are frequently associated with intussusception although they are rare in infants and young children. Tumorous heterotopic (ectopic, aberrant) gastric mucosa in small bowel other than in the Meckel's diverticulum or other congenital anomalies of the intestine is rare. Sixteen cases have been recorded in the literature. Among them, heterotopic gastric mucosa of ileum was reported in four cases; three of them had chronic intestinal obstruction.

3.3 to 6 percent of the patients with intussusception are over five years of age.[4,6,7,10] The combination of these entities is the subject of this case report.

Case Report:

The patient (B.W.C., No. 63591), a six-year-old white male, was well until one week prior to admission when he had mild upper respiratory infection without fever. On December 25, 1972, he suddenly developed para-umbilical abdominal pain associated with nausea. After midnight, his abdominal pain became cyclic and more colicky. He had intermittent bile-stained emesis and passed three diarrheal stools. About noon, he passed a "currant jelly" stool. A clinical diagnosis of intussusception was made and he was admitted on December 26, 1972. Physical examination revealed a well-developed, well-nourished, dehydrated, pale, apathetic child. Temperature was 37.5°C rectally. Pulse was 88/minute. Respirations were 22/minute. His abdomen was slightly distended with mild tenderness in all quadrants. Bowel sounds were hyperperistaltic. An ill-defined mass was palpable in the umbilical area. Dance's sign was positive. Rectal examination was normal.

White blood cell count was 9,900 with a normal differential. Hemaglobin was 13.9 gms/dl and hematocrit 39.3 percent. Serum electrolytes were normal. Urinalysis revealed specific gravity of 1.025, sugar +3, acetone +4, white blood cells 3-7/HPF. Roentgenograms of the abdomen revealed marked dilatation of small intestinal loops and air-fluid levels (Fig. I).

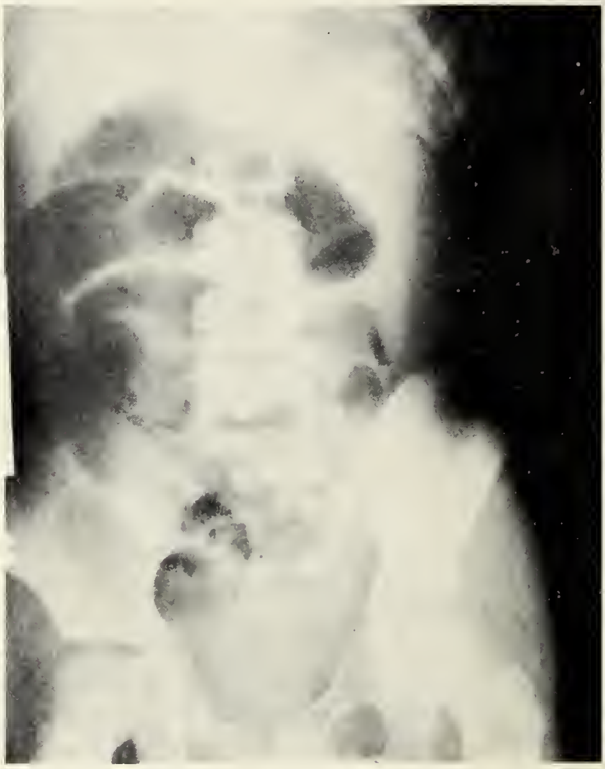

Figure 1

The plain films of the abdomen demonstrate marked dilatation of small intestinal loops.

An emergency barium enema examination revealed an intussusception in the hepatic flexure during the initial fluoroscopic examination. The intussusception was reduced proximally to the region of the ileocecal valve during fluoroscopy. Meniscus sign was observed on X-ray. The standard radiographic techniques, as described by Ravitch, were

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DR. YOICHI KATSUBE, Surgical Resident: DR. NEIL LEBHAR, F.A.A.P., Senior Attending, Department of Pediatrics; DR. ANTHONY CARMEN NOTO, F.C.A.P., Attending, Department of Pathology and DR. WILLIAM HUGHES, F.A.C.S., Chairman, Department of Surgery, Norwalk Hospital.

Doctor Yoichi Katsube met an untimely death in an automobile accident on January 31, 1974.

used, but reduction was incomplete. Post evacuation films demonstrated a large, soft tissue density in the middle part of the ascending colon (Fig. II).

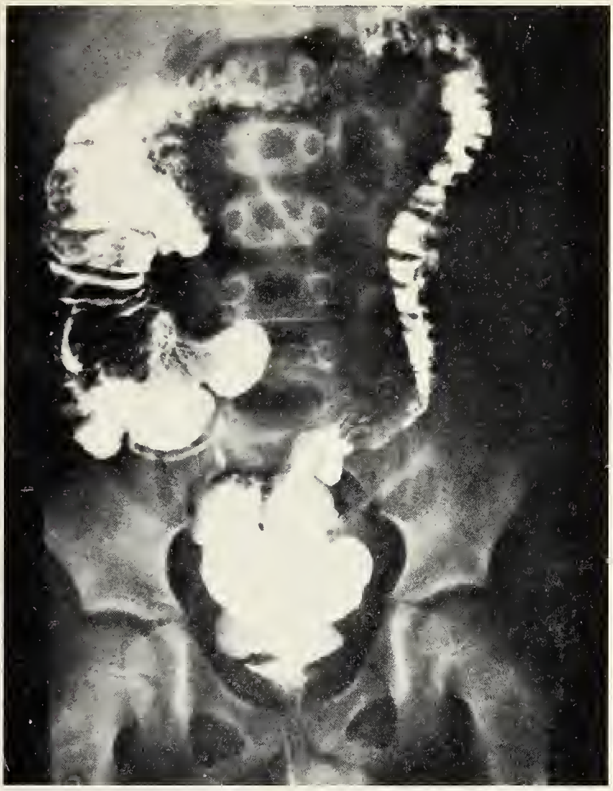

Figure II

The post evacuation films demonstrate a large soft tissue density opposite the mid ascending colon.

After adequate intravenous fluid administration for correction of dehydration, emergency surgery was performed. At laparotomy, a large quantity of ascitic fluid was encountered. An intussusception was not found; however, the terminal ileum was congested and edematous. Presumably the intussusception had reduced spontaneously. Many enlarged lymph nodes were observed in the mesentery of the bowel. About 30 cm. proximal to the ileocecal valve there was a slight, smooth protrusion which began from the mesenteric border of the lateral wall of the ileum. Within the protrusion, there was a pink, tan, soft, bosselated, polypoid mass, 0.9 cm. in width, 2.0 cm. in length, and 0.8 cm. in thickness. The elliptical mass was fixed to the ileal wall. There were no other abnormalities found in the remainder of the small intestine and colon. The mass was excised with a 0.5 cm. margin, the small intestine was closed transversely, and an incidental appendectomy was performed. Post-operatively the patient clinically improved and was discharged on the sixth post-operative day.

Histologic study revealed that the polypoid mass consisted of well-differentiated gastric mucosa with many parietal cells within the mucosal glands (Fig. III, IV). At the periphery of the lesion, there was an abrupt transition from gastric mucosa to small bowel mucosa. The submucosa beneath the heterotopic tissue was edematous and contained a moderate number of acute and chronic inflammatory cells. The inflammatory cellular infiltrate extended deeper, involving the muscularis, which was double layered, and the submucosa, which also showed telangiectasia. Interstitial hemorrhages were in the submucosa and muscularis.

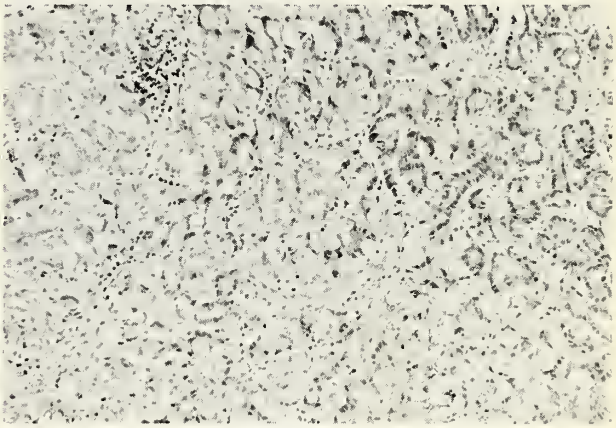

Figure III

Low power view of heterotopic gastric mucosa showing numerous light stained parietal cells in transected glands. (H & E).

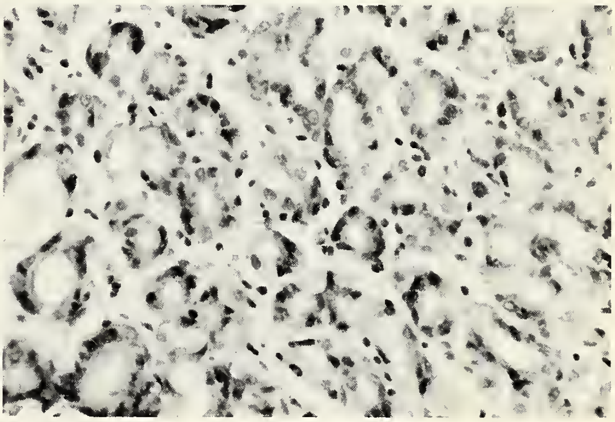

Figure IV

High power view of heterotopic gastric mucosa showing light stained parietal cells and darker stained chief cells in transected glands. (H & E).

Comment

Intussusception is the most frequent cause of intestinal obstruction in children between the ages of two months and two years. About 94-96.7 percent of the patients with intussusception are under the age of five.[4 6 7 10] Intussusception in children is usually considered idiopathic, 81 to 93 percent.[2 4 5 9 10] Occasionally it is attributed to such local lesions as Meckel's diverticulum, lymphoid hyperplasia, lymphosarcoma polyp, cecal duplication, ileocecal band, Henoch-Schoenlein purpura (hematoma), coarctation of aorta, and Peyer's patch.[4 5 6 7 8 9 10]

Heterotopic gastric mucosa in the small intestine was reported in 16 cases. All of these were asymptomatic or had symptoms of chronic intestinal obstruction.[1] Five cases had gastric mucosa in the duodenum, all of them asymptomatic. Of these, four cases were discovered at autopsy.

In seven cases, heterotopic gastric mucosa was located in the jejunum. Of these, six cases had chronic obstruction of the intestine and required resection. Four cases were reported with heterotopic gastric mucosa in the ileum.[3 11 12] The first of these was presented by Poindecker in 1912 as an instance of gastric heterotopia in the ileum of a nine-year-old girl who had evidence of chronic obstruction of the small intestine. The second case was reported by Taylor in 1927 of a 17 month old boy who died after multiple episodes of intestinal hemorrhage over a period of four months. Necropsy showed a tumor on the mesenteric border of the ileum 10 cm. above the ileocecal valve.

The third and fourth cases were reported by Soule and Hallenbeck in 1962, successfully treated by intestinal resection. The third case was that of a six-year-old white girl with a three week history of abdominal mass without symptoms. A pale pink, polypoid mass 1.5 cm. in diameter was found, situated on a stalk of ileal mucosa 1 cm. long, 12 cm. above the ileocecal valve on the antimesenteric border of the intestine. The fourth case was that of an 11-year-old white boy with a history of intermittent abdominal pain associated with vomiting of three to four years duration. A 4 cm. mass was found on the mesenteric border of the ileum 45 cm. above the ileocecal valve. Six of the reported cases of duodenum and small intestinal heterotopic gastric mucosa were asymptomatic and ten of them showed chronic signs and symptoms of intestinal obstruction.

Our patient had no past history of abdominal complaints. He developed abrupt onset of intestinal obstruction due to intussusception in spite of the small size of the tumor. Additional factors which were considered contributory in this case were mesenteric lymphadenopathy and a recent respiratory infection which may have led to acceleration of intestinal peristalsis, and disposed to intestinal intussusception.[4 5 6 7 9 10]

Reprint requests should be addressed to Dr. William Hughes, Norwalk Hospital, Norwalk, Connecticut 06856.

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Subcutaneous Mastectomy Indications and Technique

Philip F. Corso, M.D.

Introduction

At the present time treatment recommendations for patients with malignant breast disease are altering toward less radical operations — a trend based on a hard look at results achieved and on the effects of mutilating operations upon the quality of survival of women unfortunate enough to have breast cancer. Paradoxically, at the same time it appears that the operative treatment of benign breast disease is being approached with greater boldness. For benign disease simple mastectomy is recommended more often, and this paper presents an attractive alternative to the standard techniques — i.e., subcutaneous mastectomy with prosthetic replacement of breast tissue.

Indications

Table I indicates the most widely accepted and least controversial indications for subcutaneous mastectomy. Although exceptions may exist, this author believes that subcutaneous mastectomy is not indicated as an operative procedure for carcinoma of the breast. Careful evaluation should be made for existing breast scars, the presence of palpable breast tissue extending towards the axilla, and the presence or absence of palpable axillary nodes. Mammography and thermography also provide valuable additional information.

TABLE I

POSSIBLE INDICATIONS FOR SUBCUTANEOUS MASTECTOMY

1. Fibrocystic disease.
2. Large benign tumors.
3. Multiple biopsies.
4. Mastodynia.
5. Family history of breast cancer with progressive nodularities.
6. Extreme cancerophobia.
7. Contralateral breast carcinoma (10%).
8. Premalignant lesions.

Technique

A transverse inframammary incision should be used whenever possible for biopsy of suspicious nodules. Infiltration of the subcutaneous plane between breast tissue and skin with a xylocaine-adrenalin-hyaluronidase mixture ten minutes before dissection greatly facilitates removal of breast tissue. Figure II diagrams the author's preference for first elevating breast tissue off of the pectoralis fascia with subsequent dissection of the subcutaneous plane from the inframammary incision up to just below the clavicle. The cold sharp knife and

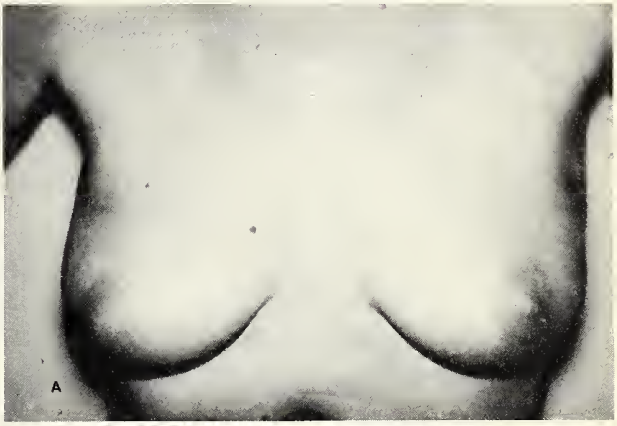


Figure I
Pre-operative view of a 38 year old female with a two year history of mastodynia.

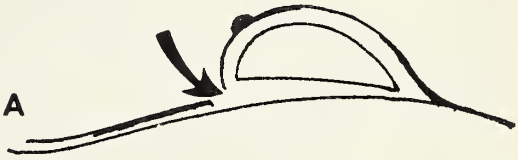
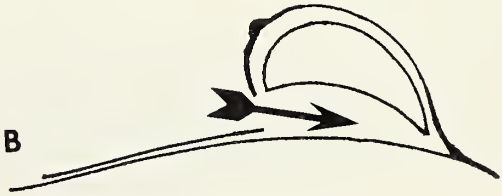


Figure II
A. Diagram indicating how dissection is started from inframammary incision on top of pectoralis and along medial aspect of breast.



B. Progression of dissection to apex of breast tissue just below level of clavicle.

DR. PHILIP F. CORSO, chief, section of plastic and reconstructive surgery, Bridgeport Hospital and Norwalk Hospital.

C. Dissection of anterior plane of breast between subcutaneous layer and breast. This layer is best done with sharp dissection. Particular care below the nipple and scars is urged.

scissors are preferred over the electrocautery for development of flaps. Hemostasis must be meticulous before placement of a prosthesis.

Three types of breast prosthesis are currently recommended. The new Dow-Corning soft round prosthesis is prefabricated and filled with silicone jel. It is available in at least five different sizes and has a dacron mesh backing to provide fixation. The Ashley (Weck) prosthesis is covered with polyurethane sponge which provides softness and additional padding below thin subcutaneous inflaps. It provides secure fixation to the chest wall, thereby minimizing subsequent movement of the prosthesis. The Klein prosthesis is a silicone balloon with a valve apparatus which can either be filled with saline or dextran at the time of insertion or subsequently. This prosthesis provides the softest and most natural feeling breast but has a disadvantage of incomplete posterior fixation and the danger of leakage from a faulty valve mechanism.

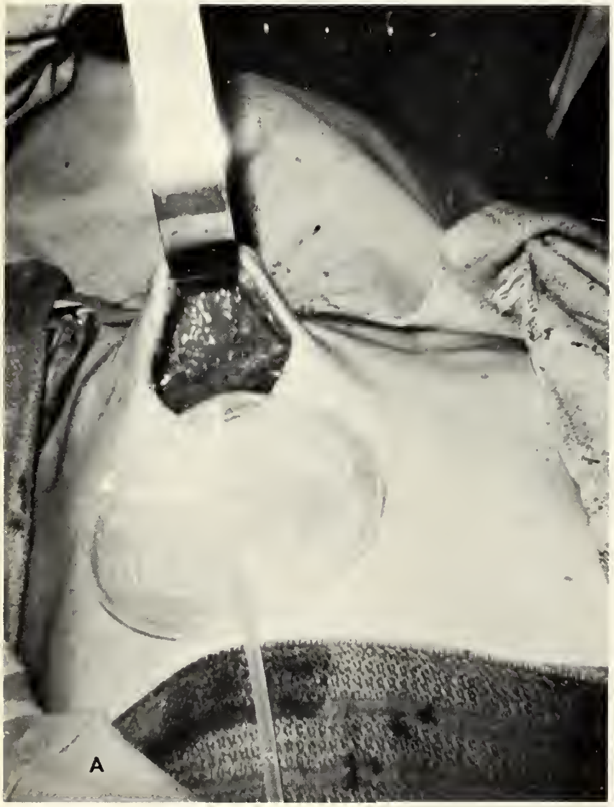
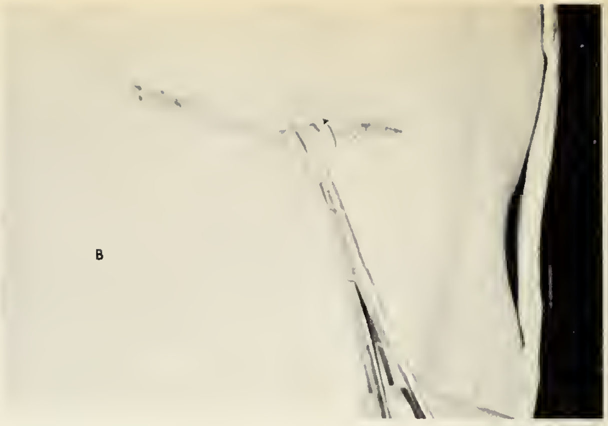


Figure III

A. Klein silicone balloon-type prosthesis ready for insertion into pocket.



B. Valve being tucked in wound allowing guide suture to remain out.

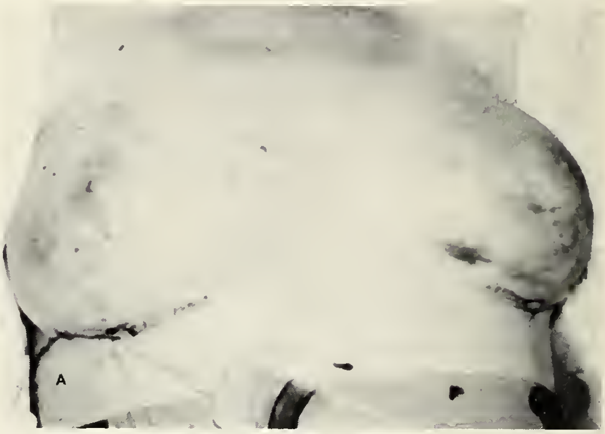


Figure IV

Saline syringe attached to valve. Approximately 180cc. in prosthesis at this point.

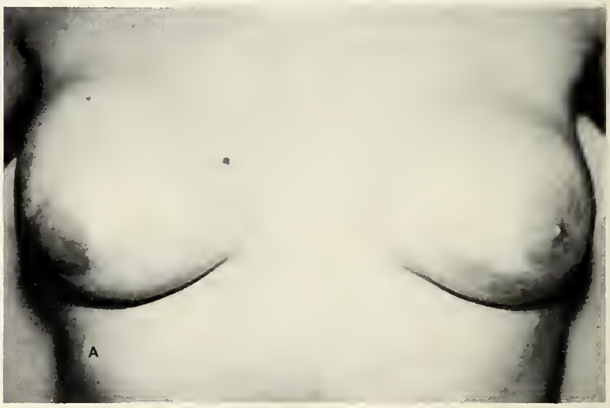


Figure V

Patient 4 months post-operative frontal view.

The author prefers the Klein prosthesis and usually elects to bring the valve mechanism through the inferior mammary incision to allow filling 3 to 5 days after operation. Adequate drainage of the medial and lateral aspects of the breast pocket is instituted for a few days, and filling of the prosthesis is delayed should any evidence of hematoma or seroma formation be found.

Results

Subcutaneous mastectomy has been carried out in three patients with reconstruction of six breasts. Indications are listed in Table II for this series of patients. The Klein prosthesis has been used in two patients and an uncomplicated course has allowed early filling of the prosthesis in six breasts. One complication has occurred which consisted of inferior descent of the prosthesis. Hematoma, seroma and skin slough requiring additional operation have not occurred — yet! Only one patient with pre-operative mastodynia continues to complain of breast pain — though of lesser severity.

TABLE II

COMPLICATIONS ASSOCIATED WITH SUBCUTANEOUS MASTECTOMY

1. Hematoma / Seroma.
2. Infection.
3. Flap necrosis.
4. Malposition of prosthesis.
5. Cavity contracture.
6. Persistent pain.
7. Developing carcinoma in residual tissue.

Discussion

Removal of all breast tissue should insure against future breast disease, but near total mastectomy has not been frequently applied for benign conditions in the past because of the severe cosmetic and psychological sequellae associated with removal of this organ. The objection that subcutaneous mastectomy does not remove all breast tissue does not seem valid since careful study has shown that simple mastectomy using classic techniques also leaves a small remnant of mammary tissue, usually in the axillary fold and on the surface of the rectus sheath.

Bilateral resection by either technique for benign disease seems unnecessarily mutilating unless an acceptable contour can be restored by plastic techniques. With advances in modern prosthetics and the use of silastic bags which can be filled to any desirable volume, nearly normal configuration and texture can be restored. Delayed insertion of the prosthesis several months after initial subcutaneous mastectomy is advocated by some, but the low complication rate and the decreased cost of immediate insertion make this plan more attractive in most patients. The psychological advantage of immediate restoration is very obvious to patients and will become more obvious to breast surgeons as they take time to talk in greater detail with their post-operative patients. Whether this procedure will find a place for patients with early carcinoma remains to be seen, but the author is unwilling to advocate that this be done at the present time.

The technical aspects of dissection and placement of prosthesis are extremely important, considerably more so than in the standard operations for removal of breast tissue, but based on current experience the advantages to be gained by the patient by this new technique seem to far outweigh the disadvantages.

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Anesthesiology Grand Rounds Yale-New Haven Hospital

"Halothane Hepatitis"

Frederick W. Hehre, M.D. and A. Richard Pschirrer, M.D.
Editors
Barry Mason, M.D. and Donald Davidson, M.D.
Discussants

Dr. Barry Mason:

A 34 year old female was admitted to Yale-New Haven Hospital on June 18, 1972 for recurrent right lumbar and right leg pain.

Previous medical history included hospitalization in 1956 for severe preeclampsia during her first pregnancy, which was delivered three months prematurely. Her subsequent four pregnancies were delivered prematurely but were uncomplicated. In 1959, a notation was made in her prenatal record: "? jaundice 1959 — not hospitalized; sick 1-2 weeks." She was admitted in June 1969 for left lumbar and left leg pain, and a herniated nucleus pulposus was removed from L4L5 under halothane-nitrous oxide anesthesia, which lasted two hours and 45 minutes. Her post-operative course was uneventful and she was discharged one week later. Her medications prior to the present admission were propoxyphene (Darvon) and oral contraceptives.

Physical examination on admission was essentially normal except for an area of hypesthesia over the dorsal aspect of the left foot and lateral aspect of the left leg. Blood pressure 130/80 mmHg; pulse rate 72; hematocrit 44.6%. Myelography revealed a herniated nucleus pulposus at L4-5, and early protrusion at L3-4 on the right.

On the following day, the patient was premedicated with meperidine 75 mgm, hydroxyzine 75 mgm and atropine 0.5 mgm, one hour and 15 minutes prior to induction with thiopental, nitrous oxide and halothane. Her two hour-10 minute anesthetic course was uneventful, during which the herniated nucleus pulposus was removed. At 4:00 p.m. that afternoon, her temperature was 99.8°F., but by 8:00 p.m. it had risen to 102°F. For the next eleven days, she exhibited hyperpyrexia, reaching 103°F. intermittently on three days. She was intensively investigated for wound, urinary tract and pulmonary infections. Nine days post-operatively she developed scleral and dermal icterus with a palpable, tender liver edge. The diagnosis of halothane hepatitis was entertained at this time. Liver function tests were abnormal with elevated direct and total bilirubin and thymol turbidity. Her laboratory studies are shown in Table I. The abnormal values reached peak two days later. Medical consultation requested that prednisone 15 mgm q 6 hours be started. The patient became afebrile, improved subjectively and objectively, but because of her elevated prothrombin time, liver biopsy was postponed. Eight days later, a Klatskin needle biopsy showed focal liver cell swelling around the portal zones with mild mononuclear infiltrate. Focal liver cell necrosis and eosinophilic body degenerative changes were also seen, but subacute hepatic necrosis was not demonstrated. (Figure I.) The findings were considered consistent with halothane hepatitis.

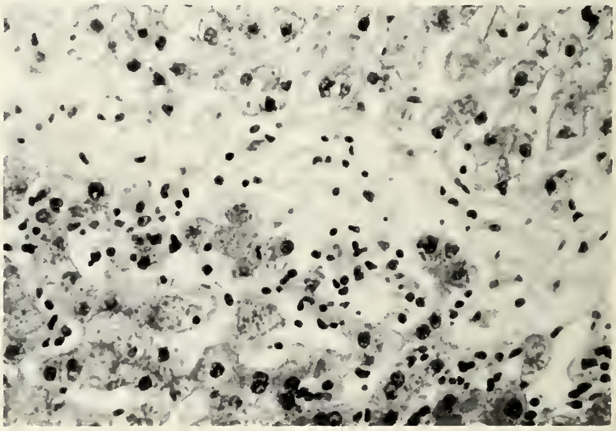


Figure I

Figure I shows a zone of hepatocellular necrosis with cell dropout and a mononuclear inflammatory reaction.

Retrospectively, approximately one week after her operation in June 1969, and one day after returning home, the patient had suffered fever, malaise and weakness which lasted for one week.

DR. FREDERICK W. HEHRE, attending anesthesiologist; DR. A. RICHARD PSCHIRRER, attending anesthesiologist; DR. J. G. BARRY MASON, attending anesthesiologist; and DR. DONALD DAVIDSON, post doctoral fellow in medicine; all of the Yale-New Haven Hospital and Yale University School of Medicine.

TABLE I
LABORATORY DATA

	6/18	6/20	6/23	6/28	6/29	6/30	7/3	7/5	7/6	7/7	7/10
ESR	—	—	50	—	48	45	—	—	—	—	21
WHITE BLOOD CELLS ($x10^3$)	9.9	13.1	5.2	—	8.7	8.0	15.6	15.1	—	11.9	14.0
EOSINOPHILS (%)	1	1	4	—	2	7	1	0	—	0	2
ATYPICAL LYMPHOCYTES (%)	—	—	1	—	—	4	5	—	—	1	—
METAMYELOCYTES (%)	—	—	1	—	—	2	—	—	—	—	1
ALKALINE PHOSPHATASE (IU)				92	106	120	118	53	104	99	72
BILIRUBIN DIRECT (MGS %)				2.90	3.00	4.16	3.55	0.50	1.72	1.22	0.75
TOTAL BILIRUBIN (MGS %)				5.44	7.08	8.44	6.30	1.00	4.08	2.88	2.22
CEPHALIN FLOCCULATION				neg.	neg.	2+	3+	3+	2+	neg.	neg.
SERUM GLUTAMIC OXALOACETIC TRANSAMINASE (UNITS)				380	360	460	144	144	88	82	50
THYMOL TURBIDITY (UNITS)				5.4	6.9	8.4	9.4	9.1	7.8	5.7	5.9
PROTHROMBIN TIME CONTROL (SEC.)				$\frac{14.3}{12.9}$	$\frac{16.9}{12.0}$	$\frac{18.0}{12.3}$	$\frac{16.5}{13.3}$	$\frac{15.0}{11.9}$	$\frac{14.8}{13.0}$	$\frac{15.0}{13.1}$	$\frac{13.7}{13.3}$
PARTIAL THROMBOPLASTIN TIME/CONTROL (SEC.)						$\frac{34.7}{26.1}$	$\frac{32.0}{29.1}$	$\frac{32.0}{28.1}$	$\frac{28.0}{27.8}$	$\frac{32.1}{26.5}$	

She was discharged on the 22nd post-operative day on prednisone 30 mgm per day in the care of her private physician.

Dr. Donald Davidson:

This is a fairly typical picture of halothane hepatitis. It demonstrates the reason for the controversy about this entity. We subsequently also found a positive Australian antigen.

Two categories of agents can cause hepatic injury. The first are hepatotoxins which cause direct damage to the liver; the other is drug hepatitis related through sensitization mechanisms. Characteristics of these lesions are quite different. Hepatotoxins, as carbon tetrachloride or phosphorous, kill liver cells directly, and show zonal necrosis, and fatty infiltration, but with minimal inflammatory reaction. In the sensitization phenomenon, the lesion takes two different forms: The first is cholestasis, and the other hepatitis. Cholestasis is seen frequently with phenothiazine therapy with biostasis and infiltration of the portal triads. Hepatitis seen after halothane exposure is indistinguishable from viral hepatitis. Hepatic toxins affect every person. Give the agent; get the illness, and the lesion is reproducible in animals. With drug hepatitis, susceptibility is sporadic; and the incidence is low. In the National Halothane Study of over 850,000 cases, only seven instances of massive hepatic necrosis were found that did not have a logical explanation, and six followed halothane, an incidence consistent with drug hepatitis. Animal models are not available. There is direct dose relationship with hepatotoxins, but none in drug hepatitis. Fever and rash, arthralgia and eosinophilia distinguish a sensitization phenomenon. One characteristic of the drug hepatitis and sensitization is a death rate up to 50%. In viral hepatitis the death rate is very low.

Clinically, fever is the hallmark which occurs initially 8 to 10 days after the exposure to halothane. A late onset fever should alert one to the possibility that a sub-clinical reaction has occurred in which fever is only a manifestation. However, on re-exposure to halothane, the fever occurs within one to three days. This patient exhibited it within four to six hours of the anesthesia. Frequently chills, malaise, anorexia and abdominal pain are also associated. These non-specific features are also typical of viral hepatitis, but viral hepatitis does not have the temporal relationship to halothane. Jaundice may or may not present a day or two later. Eosinophilia occurs in more than 50% of the cases. The highest incidence occurs when halothane is administered within one month of a previous halothane anesthesia. Re-operation within a month usually involves patients whose intervening course is well defined and available. After three or four years it may be difficult to elicit history suggestive of a halothane reaction. High spiking temperature occurring five or seven days after surgery, and associated with eosinophilia, suggests that it might be wise to choose an anesthetic agent other than halothane.

Discussion

Dr. Halim Haber: Are there associated SGOT changes in patients with fever?

Dr. Davidson: It is not checked very often. Surgical patients with late, unexplained fever should have SGOT determinations.

Dr. Phillip Noto: Abnormal liver function will occur just with the administration of anesthesia.

Dr. Davidson: Yes, but early and not associated with fever and eosinophilia eight days later.

Dr. Paul Barash: Is this a diagnosis of exclusion since the slide could also be consistent with viral hepatitis?

Dr. Davidson: When Dr. Klatskin looks at this slide, he will surely say either viral hepatitis or drug sensitization hepatitis. It is unusual to find positive Australian antigen, as in this patient, and difficult to explain the temporal relationship to the anesthesia on the basis of viral hepatitis.

Dr. Etsuro Motoyama: But she did have positive Australian antigen?

Dr. Davidson: Yes, but she should never receive halothane anesthesia again.

Dr. Barash: Does she wear a "Medi-Alert" bracelet?

Dr. Davidson: An excellent idea. She is aware that the halothane anesthesia caused her hepatitis and her hospital medical records are clearly marked.

Dr. Kalypso Bonikos: How many cells constitute significant eosinophilia?

Dr. Davidson: 5-8%.

Dr. Bonikos: Does eosinophilia occur in viral hepatitis?

Dr. Davidson: Infrequently. With this temporal relationship one is hard pressed to state that viral hepatitis will develop in a transfused patient within 15 days. She had absolutely no history of exposure to viral hepatitis; and received no blood products in the previous year, but she might have had viral hepatitis in 1959 when she was ill for two weeks.

Dr. Martin McLaren: What percentage of patients with viral hepatitis have positive Australian antigen?

Dr. Davidson: With complement fixation and radioimmune assay techniques, over 90%.

Dr. Noto: How long does it stay positive?

Dr. Davidson: If it stays positive for more than four weeks, we feel it is a criteria for liver biopsy.

Dr. Paul Palmer: The National Halothane Study involved approximately a million cases, half of which received halothane, and there were five cases in which halothane was implicated.

Dr. Davidson: There were 222 cases of massive necrosis. All were excluded by logical explanation except this group of seven, five of whom received halothane.

Dr. Palmer: A ratio 1:100,000 if half were halothane.

Dr. Davidson: The National Halothane Study reported the 1:100,000 incidence as deaths, however the estimated incidence of the reaction is 1:10,000. If a reaction occurs, the chance of dying is around 50%, and if re-administered before recovery from the reaction, more deaths ensue. In Poppers study, everybody who had a reaction who received halothane three times died. There is some suggestion that the sensitization may be modified by the passage of time.

Dr. William Lyons: What other drugs may cause sensitization similar to halothane?

Dr. Davidson: There is a big list in the chapters of toxic hepatitis in text books. Methoxyflurane has also been reported to cause it.

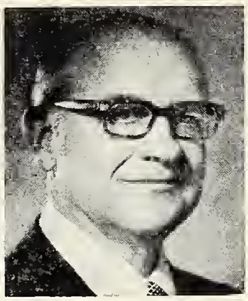
Dr. Bonikos: Why is sensitization hepatitis so lethal when viral hepatitis is not, since it has the same morphological picture.?

Dr. Davidson: The lesions are not histologically differentiable but that does not imply relationship.

Dr. Palmer: Would you limit the use of halothane in a patient with chronic liver disease?

Dr. Davidson: There is no evidence at all that previous liver disease gives a greater chance to have the reaction.

The President's Page



In 1973, one of the most important pieces of legislation that was passed by our General Assembly was a bill creating a Commission on Hospitals and Health Care. It is my privilege to serve on that Commission as the representative of the Society. Because of the great, over-all authority vested in it, the new Commission has caused — and still is causing — considerable concern in our medical and hospital communities. I suspect it may continue to do so for some time to come, but I believe that, eventually, most of those concerns will be allayed.

In my inaugural address last April, I expressed the hope that judgment would be reserved as to how the Commission would function; that it would be given a reasonable period of time in which to demonstrate by performance whether it was a force for good or for evil. In the short space of its existence since October 1st, the Commission has been beset with certain difficulties — difficulties due to difference of opinion with respect to interpretation of the enabling statute, the initiation of court challenges to its authority, and so on.

From a long-range point of view, however, I feel strongly that the Commission has the potential for rendering valuable services to the medical profession and to the public in our state. The fifteen members of the Commission appear to be people of good will who have a sincere desire to bring about worthwhile change in its field of jurisdiction. The Commission has no secret or undeclared, preconceived intent. Its sole purpose is to attempt to reduce or contain the costs of institutional health care without jeopardizing quality. This purpose differs substantially from that of PSRO, which makes claim to assuring quality but, in fact, is first and foremost concerned with costs.

Based on admittedly rather brief experience as a Commission member, I am confident that the Commission will actively seek cooperation and input from all health care providers, and that physicians on hospital medical staffs, hospital administrators and members of hospital boards of trustees will all have opportunity to participate on an equal footing.

As a representative of the Society, and of physicians generally, I will welcome the receipt of input from the Connecticut medical profession, whether individually or in groups. Certainly many practitioners must have thoughts on the subject of health care costs and health care quality, and I can assure you that such communications addressed to me will be brought to the attention of the Commission. I may say that your ideas will be considered valuable whether they reflect the opinion that the public is demanding Cadillac medicine at Volkswagen prices; that the costs of full-time, salaried chiefs of service should not be reflected in the private patient's hospital bill; or some entirely different point of view.

I firmly believe that if the Commission is given the benefit of thoughtful input from all health care providers, it can encourage the medical staff review committee, the administrator and the board of trustees of each voluntary hospital in the state to identify areas of service in which costs can be stabilized or reduced without detracting from the quality of the services. Further, I believe that such encouragement given by the State Commission can accomplish more toward achieving realization of this desired goal — and at far less cost — and at the most local level — and with many fewer rules and regulations — than can a federally-controlled PSRO, no matter how elaborate or authoritative it might become.

Sidney L. Cramer, M.D.
President

Connecticut Medicine

Editorials

LUX, VERITAS ET SHOCKLEY

Freedom is the business of all Americans, a business which has occupied the Yale community during the last couple of months.

Dr. William C. Shockley, Nobel prize winner for his discovery of the transistor and Stanford Professor of Engineering Science, was invited by the executive committee of the Yale Political Union to debate his theory that blacks are genetically inferior to whites with Roy Innes, Director of the Congress of Racial Equality.

This created a rumble among Union members, great enough for the committee to reconsider it. It was affirmed by a 6-3 vote. The grumbling then increased to a rebellious demand that it be voted upon by a referendum of the members. It was rescinded by a 200-190 vote.

Lux Et Veritas (LEVI), a "conservative," student-centered alumni group, then invited Shockley. Five persons invited to debate him refused. One, Kenneth K. Kidd, Assistant Professor of Human Genetics, stated, "It seems that this could in no way be a scientific debate. . . . At best a political speech . . . Shockley's ideas are scientifically indefensible and not debatable. . . . His genetic arguments are reasonably quickly done away with."

Ten Yale Medical School faculty members protested his appearance, and expressed "the shock and concern of the community that the racist supremacy of any individual would be given a platform here. . . . If there were scientific merit in Shockley's arguments, they should be discussed not in debate, but in the appropriate scientific journals."

President Kingman Brewster criticized the invitations, stating " . . . The best way to show one's scorn and distaste for this provocation is to leave the speakers to an audience of their sponsors." LEVI criticized Brewster for his interference "with free and open discussion at Yale" and for his "double standard in crisis situations." It reminded him that during the Black Panthers' trial during the 1970 May Day crisis at Yale he had said he was "skeptical of the ability of black revolutionaries to achieve a fair trial anywhere in the United States." LEVI finally withdrew its invitation, giving as reasons "financial and logistical difficulties" and harrassment.

A small, "conservative," debating group, founded in 1804 by John C. Calhoun, then stepped in with its own invitation. It was no more successful than the others, and withdrew its invitation.

The Yale Daily News in an editorial had upheld the invitation. The Yale administration would not permit CBS-TV to tape the debate — if it ever should occur. A law school black student group requested the administration to intervene because of the implications from such a talk.

OPINION — Though I am deeply and emotionally committed to the idea that there are no genetic differences in intelligence among humans by race I am not geneticist enough to prove this scientifically. Having premised this, I believe that Shockley should have been permitted to speak — even further, that it was Yale's duty and responsibility to refute his theory and evidence, especially if easily disproved. Isn't this what Memorial Sloan-Kettering recently did in repeating experimentation to DISPROVE the efficacy of Laetrile for the treatment of cancer? As Dr. Lewis Thomas said, "These are bad times for reason all around. Suddenly, all of the major ills are being coped with by acupuncture. If not acupuncture, it is apricot pits. . . ." At Yale it is Shockley!

Traditionally the university in its search for truth embodies our western tradition of freedom of thought. I had believed that freedom in science had been resolved centuries ago in the confrontation between Galileo and the Church, at least among the scientific community. It would be presumptuous for a practicing surgeon to review our Anglo-American tradition on freedom of speech with Yale's great constitutional lawyers within hailing distance. But this is just the point — all Americans, especially educated ones, should have at least a speaking acquaintance with our history of freedom. Though while at Yale I enjoyed Milton's *Paradise Lost*, it was only years later that I learned about the existence of his *De Areopagitica*. I would now choose it over the great epic, as I choose freedom over beauty.

Our American tradition of freedom of speech, in its broad generic sense of communication, is more clearly and beautifully expressed in the opinions of some of our great Supreme Court justices — one would be sufficient, Justice Oliver Wendell Holmes, son of our great New England physician.

Freedom of speech of course is not an absolute. Our Supreme Court has said, "There are certain well defined and narrowly limited classes of speech, the prevention and punishment of which have never been thought to raise any constitutional problem. They include the lewd and obscene, the profane, the libelous, and the insulting or 'fighting' words — those which by their very utterance inflict injury or tend to incite an immediate breach of peace. . . ." Shockley's speech does not come within this category.

Quite by chance, fortunately I heard him recently on TV debating his ideas with a black, young, university, woman psychiatrist. He was courteous, rational, dispassionate, and calm. The debate, as expected, proved little; TV is not a proper forum. His method of delivery, however, is quite important, as those interested in constitutional law will understand, because his delivery was not inflammatory, not to be classified as "fighting" words, not in a manner to incite immediate violent reaction.

Though I can understand Yale's fear that his talk might create violence, it really does not stand up as a legitimate excuse. A university, assisted by community police if necessary, has a duty to attempt to maintain order, not only for the speaker, but for those who might wish to hear. If Yale students and faculty, no matter what their color, cannot be expected to permit a forum to those with whom they disagree, then they have no concept of "ordered liberty," or courtesy, or our concept of free speech.

As for the suggestion that the proper place for such a debate be in scientific journals, while desirable, is not absolutely necessary. As an illustration, an analogous situation has just occurred during the annual meeting of the American Association for the Advancement of Science in San Francisco. It invited Dr. Immanuel Valikovsky, author of "Worlds in Collision," to debate in a public forum his controversial ideas. For the past twenty or so years he had been maligned and insulted by the scientific community. Norman Storer, a sociologist, opened the debate by apologizing for this treatment, stating that the "norms of science and norms of common courtesy had been violated." Cornell astronomer, Carl Sagan, then refuted Valikovsky's idea point by point from a 56 page critique. Some believe that many of his ideas have come true. At least, however, the scientific community finally acknowledged that they merit discussing.

I do believe that, as a compromise, Yale's invitation might have been conditioned on Shockley's submitting his theory and proofs in writing, long enough ahead of the meeting so that his opponents could study and answer them.

I cannot buy the idea that because Dr. Shockley is not a geneticist, he should not be permitted to speak or be answered. Though he is not a geneticist by training, I do think it is reasonable to premise that a Nobel prize winner in science is intelligent and able to evaluate scientific proof. If his theory is in fact, "indefensible," all the easier to demolish it. Let me illustrate the role of the amateur by a recent coincidence. The Associated Press reported an incident recently in Florida: "William Royal fought a 14-year battle with archeologists before convincing them he had discovered the oldest human remains in the New World." An amateur diver, he created a furor in 1958 when he found a skull 40 feet down in a spring. He could get no hearing from any archeologist. Three years ago he found another skull near the spring. This time, however, a professional archeologist confirmed by Carbon-14 testing that the skull was over 10,000 years old, the oldest human remnant ever found in the Americas. This one anecdote does not prove the principle, but it illustrates a danger that all experts must be alert to — that they not pooh-pooh the ideas of all non-experts in their own field.

Criticism is one thing, but what would *Connecticut Medicine* do if Shockley submitted an article for publication. As free as I might hope that our Journal should be, it is self-evident that the university by definition and comparison should epitomize freedom in its purest sense. My first editorial did state " . . . It shall never be said that *Connecticut Medicine* refuses a letter to the editor. The greater the dissent, the higher its priorities in being published. The only restrictions are those of libel, and I believe it is reasonable to ask of physicians that even the most controversial letter be within the dignity of the profession." I have published only one article that might be labeled controversial — "A Shopper's Guide to Surgery" by Commissioner of Insurance Denenberg, a lawyer, of Pennsylvania. It produced flack, both pro and con. The Editorial Board unanimously endorsed its publication, though one absent later did describe it in four-letter words.

An idea becomes truth only after competition with other ideas, and not until or unless put to the test of competition, of criticism, and of rebuttal. "Every idea is an incitement." No matter how much compassion scientists may feel for minority groups, they should be able to discuss race in an intelligent, rational, dispassionate, objective, reasonable, and scientific manner without labeling such discussion as racist. I believe that history will not record this as one of Yale's prouder moments.

FRED FABRO, M.D.

Reflections from the Dean's Office

Robert U. Massey, M.D.

Recently a group of legislators representing the Connecticut State Assembly met at the Health Center in Farmington to tour the new buildings and to learn about medical and dental school academic programs. For many it was the first time.

As expected, there were questions about cost, about where the students came from, and about where our graduates would practice. They wondered if many would be general practitioners. There were questions about why the faculty was involved in research, why we could not admit more students, and whether the programs related to public need. Some wondered about whether the faculty knew about public need. All of these are legitimate questions. There was little apparent concern about quality and academic excellence. This is understandable.

As academicians and physicians we have not told our story well. Complex questions cannot be answered simply, and complex answers often sound defensive or evasive. One legislator wondered why we were always trying to hide something.

Harry Schwartz, quoted in a recent article in the Bulletin of the American College of Surgeons, said in an address to a group of surgeons: "American medicine has many virtues, merits, and achievements. Unfortunately this side of the argument usually gets little attention. Your side of the story is rarely heard compared to the frequent public airings of the views of your detractors." American medicine includes practitioners, hospitals, medical schools; it includes public health programs, mental health programs, emergency services, home care, research, and education. It is a vast, complicated, and expensive undertaking costing 80 billion dollars and about which millions of words are written every year. Mercifully, most of these words tend to circulate within a closed system; some of them deserve to be heard, but there is "almost complete separation between the organized medical community and the key thinkers of the country."

The critics have the floor, and they have kept it for a long time. Many of their accusations are deserved; we are members of an imperfect society and our arrangements for coping with disease and injury, for educating and training men and women to care for others in matters of life and death, and for seeking out causes and devising measures for prevention, cure, and care are parts of that imperfection.

This ought not to occasion personal anxiety, general anomie, or pessimism, but for ten years society's institutions have been caught up in a paralysis of self-doubt, confusion, and depression. The university shares in Hamlet's disease, and questions about goals and objectives are apt to be answered by a torrent of excuses, rationalizations, cliches, and unreasoned counteraccusations. Intellectuals attack intellectualism, professionals attack professionalism, the churches attack religion and civility is lost, all in the name of relevance which no one bothers to define.

These are not the worst of times although they seem gloomy. The building of society is always unfinished, and the storehouse of knowledge will never be filled. As educators and physicians we are required to work at our tasks and should be willing to explain to anyone what we are doing and why we are doing it, and why it must be done so carefully and well. That it is costly of time and treasure is to be expected; the prize is worth it and we should never neglect to say so. The western world has a proud heritage in medicine and in our universities; in the academic health center medicine and learning come together. In a time when society is lashing out at its institutions, we cannot remain silent hoping we shall be overlooked.

If medicine is to go about its work in tranquility and if medical knowledge is to continue to be advanced for the public good and students are to be educated, the attack must be called off. An aggressive counterattack will not do; in civility we must persuade our critics that inquisitions are unprofitable, politics are out of place, and that only by dispassionate workmanlike review of the problems followed by a consideration of choices are we likely to remove any of our imperfections and recover our optimism.

ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.

The Well Written Case Report
An Asset to the Medical Literature

Martin Duke, M.D.

The medical case report is a method of communication between physicians. As such its format has traditionally evolved into 1) a brief introduction in which is stated the essence of what is to follow and by which the reader is lead into 2) the report of the case itself. This is usually followed by 3) a discussion in which the author explains the uniqueness or points of major interest of the case, at the same time referring to previous cases (review of the literature).

Before writing a case report, an author must decide on several points. Is the material worthy of a communication? Is the case unique? Can others learn and profit from the material presented? Is the documentation adequate, be it clinical, laboratory, or pathologic information? Will the case alert others to similar situations that may arise? Or is the case only a slight variant from what has previously been reported? Questions such as these can only be answered based upon a detailed knowledge of the case itself and a careful review and understanding of the literature.

The introduction should contain information that whets the intellectual appetite for what is to follow. A clearly expressed introduction can gain a reader; a poor introduction will often lose one. The brief and seemingly innocuous introduction belies the care and thoughtfulness its preparation demands if a paper is to be both published and read.

Many case reports submitted for publication suffer from a common malady — lack of brevity. The author, in an effort not to overlook anything, too often fills the report with all available clinical information, at times to demonstrate how complete and thorough the management and workup have been, at times because of ineptitude, lack of understanding, or sheer laziness in separating unnecessary from significant material. In such situations the prerogative of authorship is surrendered, and the reader is left to separate the "wheat from the chaff" without guidance.

As part of the responsibility and privilege of authorship, it is the obligation of the writer to review all previous literature pertinent to the subject matter. However, too often there is the compulsion that having performed this extensive review (truly a labor of love), one must prove it to the reader by citing every reference. Indeed for this reason one often sees identical bibliographies, often with the same grammatical or spelling errors, referred to again and again. Reference to either recent pertinent cases or to recent reviews of the subject can usually provide adequate documentary material without resort to a lengthy bibliography. A few well chosen statements in the discussion can then emphasize for the reader why the case is unique or is being presented.

Clarity and brevity in writing a report take time, effort, and considerable experience to achieve. A well prepared table, chart, or illustration can contribute towards these goals. With care, thought, well selected words, liberal use of an eraser, and emphasis on a *few* rather than a multitude of points, it should be possible to produce short interesting reports not exceeding 1000-1400 words. With few exceptions, the essence of a case report rarely benefits from a lengthy presentation. A review of case reports in the major medical journals, sometimes listed as brief recordings or communications, can often serve as examples for the prospective author.

Many more case reports are submitted for publication than can be accepted. In order to enable additional reports to be published, and in order to "compete" for the space available, it is hoped that some of the suggestions outlined above may be of benefit. Further details of medical writing, and of reports of cases in particular, can be found in several references.[1-5] Editors and reviewers appreciate the well conceived ideas, the thoughtfulness of preparation, and the brevity that goes with hard work, all hallmarks of an informative case report — and an asset to the medical literature.

DR. MARTIN DUKE, Director of Medical Education, Chief of Cardiology, Manchester Memorial Hospital, Manchester, Conn.

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The National Library of Medicine

Just outside Washington, D.C., on the grounds of the National Institutes of Health in Bethesda, Maryland, stands the world's largest research library in a single scientific field — the National Library of Medicine (NLM). Although the modern building it now occupies dates back only to 1962, the collection traces its roots to 1836 and the medical literature assembled then in the office library of the Surgeon General, U.S. Army.

Growing steadily over the decades, the Army Medical Library (as it was to be called) became the Armed Forces Medical Library and, finally, over a century later in 1956, by act of Congress, the National Library of Medicine. The Library was at the same time transferred to the U.S. Public Health Serivce, Department of Health, Education, and Welfare. The legislation creating the National Library of Medicine provided for the establishment of a Presidentially appointed Board of Regents to advise on policy matters relating to the Library's operation.

NLM is a "library's library," that is, the materials are loaned out only through another library. A medical library that cannot fill a request from one of its patrons may request the book or journal article from NLM, through a Regional Medical Library. Books are loaned in original form; requests for journal articles are filled by sending a photocopy. Of course, the collection may be consulted at the Library itself, and over 20,000 researchers, practitioners, and students each year visit NLM for that purpose.

In addition to the literature of medicine, the NLM collection includes material from such disciplines as the behavorial sciences, chemistry, physics, zoology, botany, psychology, instrumentation, and other areas that are peripheral to (but sometimes indispensable in the study of) biomedicine. The holdings include some one and a half million books, journals, technical reports, theses, pamphlets, microfilms, and pictorial and audiovisual materials. More than 70 languages are represented in the collection.

What especially distinguished the Library, almost from the beginning, was not just the extensive collection but the innovative efforts to make the literature easily accessible. The Library's emphasis on improving access to published medical information is understandable when one considers that the scientific literature doubles in size every 15 years. It has been estimated that a person reading 300 words a minute would take 50 years to read a single year's scientific publications, even if he read 24 hours a day, 7 days a week.

Computers Aid Access

The first major pioneering effort of the Library, in 1879, was under the direction of surgeon John Shaw Billings, one of the most famous names in 19th century medicine. It was the development and publication of an index to the world's biomedical journal literature — the indispensable *Index Medicus*. Eighty-five years later, in 1964, after our manual processing systems had begun to break down under the sheer volume of the literature, the Library put into operation a computerized system for the production of *Index Medicus* called MEDLARS (Medical Literature Analysis and Retrieval System).

This application of modern information-handling techniques to bibliographic services is a development Dr. Billings would have understood, for it is he who suggested that cards with punched holes be used in the Tenth U.S. Census (1880) to record data about individuals, and that a machine do the work of tabulating. There are now some two million references to journal articles in MEDLARS, the descendant of this early tabulating machine.

MEDLARS, at the forefront of information retrieval technology in 1964, has since been refined to allow on-line searching of a data base containing almost 500,000 references from the most recent medical journal literature. The new system, called MEDLINE (for MEDLARS On-Line), is accessed by terminals located in medical libraries throughout the country via a telephone-based communications network. By "conversing" with the computer at NLM using the typewriter-like terminal, a physician is able to retrieve almost instantaneously references to the latest journal articles in his area of interest.

The result of a MEDLINE search may be printed directly on the user's terminal (on-line) or, if a large number of citations is involved, it may be printed by the NLM computer (off-line) and mailed to the user. The growth of MEDLINE has been dramatic since its introduction in late 1971: searches are now being done at the rate of 200,000 per year. MEDLINE services, originally provided by NLM free to institutions, are now being charged for at the rate of 10 cents a minute for the time the terminal is connected to the computer, and 10 cents a page for off-line prints. Some institutions charge a fee to the user to recover this cost; others provide the service without charge.

Access to MEDLINE is now available in every state and several foreign countries. Over 200 institutions have terminals, including the University of Connecticut Health Center Library in Farmington and the Yale University Medical Library.

In recent years, the Library's mission has been expanded to include programs of grant support, research and development in the application of modern communications technology, toxicology information, and audiovisual collection and development.

To strengthen the Nation's medical libraries, Congress enacted the Medical Library Assistance Act in 1965 to provide grant assistance for construction of libraries, training in medical library science, performing research and development in library science and communications, improving library resources, establishing regional medical libraries, and support of publications. To date, over $53 million has been distributed by the National Library of Medicine to medical libraries ranging in size from small hospital collections to major medical school libraries.

Lister Hill Center

The application of new technology is the function of the Lister Hill National Center for Biomedical Communications. Established within NLM in 1968, and named after one of the co-sponsors of the 1956 legislation that created the National Library of Medicine, the Center has pioneered in the application of such space-age technology as satellites for experimental communications networks. Health aides in remote Alaska villages are now in daily voice contact, via satellite, with physicians in more populated areas, resulting in a higher level of health care for the Indians and Alaska natives. The satellite is also being used to transmit computer-generated data, electrocardiograms, x-rays, and other physiological data, on an experimental basis.

The Lister Hill Center is supporting a two-way interactive microwave television network in New Hampshire and Vermont (centered at Dartmouth College) to offer outlying local hospitals and busy community practitioners the benefit of university and major medical center consultation and training. The Center is also supporting a pilot project in a New York City ghetto area that seeks to provide two-way communication, via television, between the elderly residents of a large apartment complex and the Mt. Sinai Medical School.

Toxicology Information Program

The Toxicology Information Program (TIP) was established at the Library in 1967 in accord with a recommendation by the President's Science Advisory Committee. The Program is responsible for setting up computer-based data banks of information from the literature of toxicology and from the files of collaborating organizations, both governmental and nongovernmental. For example, the manual files assembled by the University of Rochester and Dartmouth Medical School to prepare the handbook *Clinical Toxicology of Commercial Products*, are being transferred to computer files by TIP, in collaboration with the two institutions.

The Program has also developed several information services available to professionals working in such areas as environmental pollution, occupational health and safety, pharmacology/toxicology, medicine, and related scientific disciplines. One of these, the Toxicology Information Response Center, has been established at the Oak Ridge National Laboratory in Tennessee to conduct searches of the literature in response to individual requests, and to sponsor specialized bibliographies and state-of-the-art reviews.

Another service developed by the Toxicology Information Program is an on-line retrieval system for toxicology information (TOXLINE). The data base consists of over 250,000 citations and abstracts and is accessed, like MEDLINE, by remote terminals. Included in the data base are abstracts and citations from the *Toxicity Bibliography, Chemical Biological Activities, International Pharmaceutical Abstracts,* and other files of information on pesticides and environmental pollutants.

National Medical Audiovisual Center

A major operating unit of the Library since 1967, the National Medical Audiovisual Center (NMAC) is in Atlanta, Georgia. The principal goal of NMAC is to develop a national program to improve the quality and use of biomedical audiovisuals in schools of the health professions and throughout a biomedical community.

The Center not only operates a distribution system of medical films and videotapes, lending more than 100,000 items annually to health science and teaching organizations, but compiles catalogs and indexes to help users locate the material quickly and easily. In fact, citations to some of the audiovisual material are being placed on-line for retrieval using the MEDLINE system.

NMAC also has programs to assist health-science schools plan and design audiovisual instructional facilities. In a new Cooperative Media Program, the Center is working with a number of professional and educational groups to develop innovative self-instructional aids and modular teaching packages for use primarily in medical and dental schools.

Despite these very modern-sounding programs, the National Library of Medicine remains best known in the medical world for its publications — chief among them *Index Medicus.* This monthly bibliography, found in over 6,000 medical libraries around the globe, is a subject-author guide to articles appearing in 2,200 of the world's leading medical journals. The journals are selected by an advisory committee of scientists, editors, and librarians, indexed by professional literature analysts, and the resulting citations stored in the computer. The citations are retrieved not only for *Index Medicus* (and its offshoot, covering 100 journals of clinical interest, *Abridged Index Medicus*), but for over 20 different bibliographies and indexes in specialized biomedical fields, such as dentistry, nursing, anesthesiology, and toxicity.

In addition to citations to journal articles, cataloging information on all new books and journals acquired for the collection is stored in the computer. Not only is this information retrieved for publication in the *Current Catalog,* it is also available for on-line searching, using the same network of terminals and telephone lines as MEDLINE. This service is especially useful to medical librarians and is called, appropriately, CATLINE (for Catalog On-Line). Another on-line service to the library community is SERLINE, which stands for "serials-on line." SERLINE allows instantaneous locating of any of 6,000 serial titles in over 100 medical libraries.

NLM has developed a network arrangement through which these bibliographic retrieval capabilities and interlibrary loan activities can be shared more efficiently by medical libraries around the Nation. Eleven major institutions have been designated Regional Medical Libraries to provide service to other libraries in their regions. Although NLM remains the backstop of the network, more and more services are being provided directly by The Regional Medical Libraries. The Regional Medical Library serving the New England area is the Countway Library of Medicine at Harvard.

For a library to be merely a repository — a warehouse — of biomedical books and journals is not enough to meet the needs of today's health professionals. The computer's great ability to store and retrieve information, coupled with a national system for sharing resources through a library network, makes possible access to the growing biomedical literature with a speed undreamed of by John Shaw Billings.

For further information about Library programs and services, contact the Office of Public Information and Publications Management, National Library of Medicine, 8600 Rockville Pike, Bethesda, Maryland 20014, (301) 496-6308. The Library is open 8:30 a.m. to 9:00 p.m., Monday through Friday, and 8:30 a.m. to 5:00 p.m. on Saturday. (Summer hours: Monday through Saturday, 8:30 a.m. to 5:00 p.m.) Tours of the Library are conducted weekdays at 3:00 p.m.

The 93rd Congress: National Medical Legislation Review and Prospect

Health care issues received considerable Congressional attention in 1973, both in terms of enactments and committee hearings. A total of 17,528 bills and resolutions were introduced in the first session, of which more than 1,900 were of interest to medicine. Over 230 of these measures have now been enacted and signed into law. Nine bills were vetoed by the President, and one veto was overridden.

Congressional hearings covered a broad range of topics from national health insurance to the health aspects of the energy crisis. There is every indication that the coming session will be equally significant to medicine, and, indeed, the President is expected to open the session with a call for national health insurance in his State of the Union message.

Many familiar issues will be reviewed and newly enacted programs be implemented through administrative actions. Several of the principal issues of interest to medicine are set forth below.

HMO'S . . . . . The most far reaching legislation adopted in the first session was S. 14, the Health Maintenance Organization Act of 1973, P.L. 93-222. The bill establishes a five-year, $375 million program of federal subsidies to prepaid group practices. The legislation is the product of extensive debate and study over the past several years. Programs suggested in the last Congress included one which would have cost more than $5 billion. The Senate bill as reported by Committee in this Congress would have authorized $1.5 billion, but the measure as finally passed by the Senate called for $805 million over a three-year period. Accordingly, the present statute represents the adoption of a more cautious and experimental type of plan than that which was originally suggested. The law sets forth services which HMO's would be required to provide their enrollment groups, but it allows the HMO to charge copayments in amounts approved by the Secretary which may be required for the provision of specific basic health services in order to control total program costs and utilization of services. All employers having 25 or more employees, and providing health insurance as an employee benefit, will be required to make HMO enrollment available where such group practices are available. This option would be an alternative to the employer's conventional medical insurance, but the employer's rate of contribution for HMO coverage would not be required to exceed its present rate. It should further be noted that the law calls for the premption of certain state laws dealing with the corporate structure of prepaid group practices. It would, among other things, exempt HMO's from any requirement that they meet requirements applicable to insurers of health care services, such as, requirements setting capitalization and the establishment of financial reserves against insolvency. HMO's would also be allowed to advertise their services, charges or other nonprofessional aspects of operation notwithstanding existing state law.

PHS Extension . . . . . Many well known public health service programs such as CHP, RMP, and the Hill-Burton Program were scheduled to expire last June. There was extensive debate as to the necessity for several of these programs, and concern was widely expressed regarding duplication of effort and possible waste. In order to allow for further study of the entire Public Health Service Act, Congress enacted P.L. 93-45 extending the programs in question through the current fiscal year. Accordingly, these programs, together with the medical manpower and nurse training programs, are presently scheduled to expire this June 30. The House Subcommittee on Public Health and Environment is developing a series of bills, several of which have now been introduced, to recodify the PHS Act and to consolidate and restructure various federal programs. Early hearings are expected on H.R. 11511, a two year extension of programs of assistance for community mental health care centers, family planning, migrant health, and neighborhood health centers.

The Subcommittee will also devote early attention to H.R. 12053, the National Health Policy and Health Development Act of 1974. This bill contains four titles and it would revise the PHS Act substantially. It calls for (1) the creation of a National Council for Health Policy; (2) the determination of regional health areas with a health service agency for each area; (3) the designation of state health commissions as regulatory bodies; and (4) federal loans and loan guarantees to assist in the construction of health facilities.

The Senate Health Subcommittee is also reviewing expiring PHS authorities as is the Administration, and alternative proposals are expected to be introduced this spring. Prompt action is expected, since the programs under review are presently scheduled to expire at the end of the current fiscal year.

Social Security Amendments . . . . . Another major area which was the subject of legislation in the first session and will receive additional consideration in the coming session is the Social Security Act. Prior to the holiday recess, Congress enacted H.R. 11333 (P.L. 93-233) providing an 11% increase in Social Security cash benefits. The Senate had adopted significant modifications of the Medicare and Medicaid programs in its discussion of Social Security Amendments, such as, the inclusion of certain outpatient prescription drugs as a reimbursable benefit under Medicare. Action on such items was deferred so that Congress could subject the amendments to more extensive investigation. Accordingly, Congress is expected to reconsider H.R. 3153 early in the second session.

National Health Insurance . . . . . More than a dozen major proposals for national health insurance have been introduced at this time, and the Administration's bill is expected when Congress returns. It is widely anticipated that President Nixon will stress national health insurance in his State of the Union Message. Hearings are expected to resume before the House Subcommittee on Public Health and Environment this spring. The Subcommittee has already conducted five days of oversight hearings on the general topic of NHI.

PSRO and Related Regulations ..... Much of the activity directly affecting the practice of medicine will be determined with respect to regulations implementing the PSRO Law and associated programs. Although the legislation was enacted in October 1972, the system has not yet been developed. Proposed regulations issued by the Secretary of HEW have now suggested that the nation be divided into 182 areas each of which would have a PSRO. Time for comment on the area designations is expected to be extended to about February 5. Following a final decision as to the proper geographical area, contracts will be executed so that qualified professional associations will be allowed to proceed with the review function on a conditional basis.

Aside from the PSRO law, proposed rules governing review procedures applicable to Medicare and Medicaid have been published with the government citing other statutory authority. Under the terms of proposed regulations published January 9, 1974 state Medicaid plans would be required to adopt a utilization review system, including among other requirements, preadmission approval for elective institutional admissions. The Secretary's regulations would require the Medicare system to conform to the same preadmission approval regulations.

In addition to these regulations, the Cost of Living Council on January 16, 1974 issued final regulations covering price increases allowable for health care providers. Under this formula, hospital rate increases would be related to lengths of stay and other criteria, and increases would generally be limited to 7.5% per inpatient stay. Physician's fees previously limited to an aggregate 2.5% income, would be limited to a total increase of 4% on the physician's entire annual practice income. Fees for specific procedures, however, could be increased by 10% or $1 for services now costing less than $10. The regulations also relate to the cost allocation of capital improvements with the requirement that certain such expenditures be approved by the applicable CHP agencies as a condition for any price increase based upon such expenditures. It should be noted that the statutory authority for the control program under the Cost of Living Council is scheduled to expire April 30, 1974. Congress had extended the Economic Stabilization Act for one year last spring when it enacted P.L. 93-28.

Status of Selected Medical Legislation — January 18, 1974

Bill No.	*Description*	*Status*
H.R. 2 Dent	To revise the Welfare and Pension Plans Disclosure Act.	Referred by Education and Labor Committee; 10/2/73
H.R. 50 Roy	Establishes an Office of Rural Health Care in HEW to administer and coordinate rural health care programs.	Referred to Interstate and Foreign Commerce Committee
H.R. 643 Hosmer	*Food Supplement Amendment of 1973:* Overrides FDA regulations pertaining to vitamin and food supplement.	Hearings before House Subcommittee on Public Health and Environment
H.R. 1058 S. 423 Rogers Ribicoff	To create a cabinet level Department of Health.	Referred to Senate Labor and Public Welfare and House Interstate and Foreign Commerce Committee
H.R. 3153 Mills	*Social Security Amendments of 1973:* Includes certain outpatient drugs under Medicare and other Medicare and Medicaid amendments.	Senate and House Conferees appointed
H.R. 4200	*Retirement Income Security for Employees Act:* Regulates the administration of private pension funds and modifies the tax treatment of retirement contributions. Increases allowable Keogh plan deductions.	House Passed; 6/27/73 Senate Passed; 9/19/73
H.R. 5463 Hungate	To establish a code of evidence for actions in federal courts (present status of physician-patient privilege unchanged.)	Reported by Judiciary Committee; 11/15/73
H.R. 7724 Rogers	*The National Biomedical Research Fellowship, Traineeship and Training Act of 1973:* Establishes a program of health research fellowships through NIH. (Senate bill added provision for control of human experimentation.)	House Passed; 5/31/73 Senate Passed; 9/1/73
H.R. 9341 Rogers	*Public and Allied Health Personnel Act of 1973:* Revises existing programs of federal aid for allied health and public health training.	Hearings before the Subcommittee on Public Health and Environment
H.R. 9375 Rarick	To repeal the Professional Standards Review Organization provisions of the Social Security Act.	Referred to Committee on Ways and Means
H.R. 9456 Meeds	To extend the Drug Abuse Education Act of 1970 for three years.	House Passed; 10/30/73

H.R. 9984 Rogers	*Medical Devices Amendments of 1973:* Establishes a program for the classification, evaluation and testing of medical devices.	Hearings before the House Subcommittee on Public Health and Environment
H.R. 10403 Rogers	*The Protection of Human Subjects Act:* Establishes an 11-member Commission to review the legal, moral and ethical problems of human experimentation.	Hearings before the Subcommittee on Public Health and Environment
H.R. 10957 Rogers	*Public Health Service Act Amendments of 1973:* Recodifies the Public Health Service Act.	Approved by the Subcommittee on Public Health and Environment
H.R. 11385 Rogers	*Health Services Research, Health Statistics and Medical Libraries Act of 1973:* Revises programs of health services research and extends library assistance.	Approved by the Subcommittee on Public Health and Environment
H.R. 11387 Rogers	*Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act Amendments of 1973:* Allocates resources to alcohol abuse control.	Approved by the Subcommittee on Public Health and Environment
H.R. 11511 Rogers	To extend for two years PHS authorities including community mental health centers, family planning, developmental disability, migrant health, and neighborhood health centers.	Referred to Interstate and Foreign Commerce Committee
H.R. 11535 Rogers	To extend the District of Columbia Medical and Dental Manpower Act for three years.	Referred to Committee on District of Columbia
H.R. 11539 Staggers	To provide for Public Health and National Health Service Corps Scholarship Training programs.	Referred to Interstate and Foreign Commerce Committee
H.R. 11845	To amend the Public Health Service Act to revise and extend program of health revenue sharing and health care delivery.	Referred to Interstate and Foreign Commerce Committee
H.R. 12053 Rogers	To amend the Public Health Service Act to provide for the development of a national health policy and to augment state health regulatory programs and area health planning programs.	Referred to Interstate and Foreign Commerce Committee
S. 723 Beall	*The National Institute of Health Care Delivery Act:* Establishes institute for research and development regarding the organization and delivery of health care.	Senate Passed; 5/15/73
S. 966 Nelson	*Omnibus Drug Amendments:* Calls for federal formulary, federal control of drug research and distribution.	Hearings before Senate Health Subcommittee (oversight hearings on drug regulation in general)
S. 1115 Cook	*The Narcotic Addict Treatment Act of 1973:* Provides for registration of practitioners conducting narcotic maintenance programs.	Senate Passed; 6/8/73
S. 1125 Hughes	*Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act Amendments of 1973:* Calls for three year extension of alcohol abuse control programs.	Senate Passed; 6/21/73 Hearings before House Subcommittee on Public Health and Environment
S. 1446 Javits	*The Medical Device Safety Act:* Authorizes safety standards for medical devices and requires premarket testing in some cases.	Hearings before Subcommittee on Health
S. 1450 Javits	To extend authority for assistance to medical libraries.	Referred to Committee on Labor and Public Welfare
S. 2008 Williams	*National Workers' Compensation Standards Act of 1973:* Establishes standards for state workmen's compensation programs.	Referred to Committee on Labor and Public Welfare
S. 2368 Kennedy	*Medical Devices Amendments of 1973:* Establishes a system for classification and testing of medical devices.	Hearings before Senate Health Subcommittee
S. 2690 Muskie	*Home Health Medicare Amendments of 1973:* Provides full homemakers services under Medicare and increases allowable home health visits to 200.	Referred to Committee on Labor and Public Welfare
S. 2695 Church	To assist in the establishment of home health care agencies and in the training of home health personnel.	Referred to Committee on Labor and Public Welfare
S. 2770 Stennis	*Military Special Pay Act:* Provides bonuses for continued service as a medical officer in the Uniformed Services.	Senate Passed; 12/20/73

National Health Insurance

Several major national health insurance proposals have been introduced in the 93rd Congress, and the principal remaining bill, the Administration's proposal, is expected to be introduced shortly. The House Subcommittee on Public Health and Environment has conducted oversight hearings on NIH, and these hearings are scheduled to continue this spring. Ultimate jurisdiction over NIH, however, will remain with the House Ways and Means Committee and the Senate Finance Committee.

H.R. 1	(Ullman) — *National Health Care Services Reorganization and Financing Act*
H.R. 22 S. 3	(Griffiths-Kennedy) — *Health Security Act*
H.R. 2222 S. 444	(Fulton, Broyhill, Hartke, Hansen) — *Health Care Insurance Act of 1973 (Medicredit)*
S. 915	(Javits) — *National Health Insurance and Health Service Improvement Act*
S. 1100 H.R. 5200	(McIntyre-Burleson) — *National Health Care Act of 1973*
S. 2513	(Long-Ribicoff) — *Catastrophic Health Insurance and Medical Assistance Act of 1973*
H.R. 11345	(Staggers) — *National Comprehensive Health Benefits Act of 1973*
S. 2756	(Scott-Percy) — *Health Rights Act of 1973*
S. 2796	(Pell-Mondale) — *Health Benefits and Health Services Distribution and Education Act of 1973*

NOTICE TO CONTRIBUTORS

Members of The Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Detailed instructions to contributors appear in the last section of *Connecticut Medicine* under "Guide for Authors." Adherence to the instructions will prevent delays both in acceptance and in publication.

Please send them to:

J. Alfred Fabro, M.D., Editor
Connecticut Medicine
160 St. Ronan Street
New Haven, Connecticut 06511

Private Physicians' Attitudes Toward Changing Their Practices

New Haven, Connecticut, Doctors Give Their Opinions on Different Organizational Patterns and Reimbursement Mechanisms

Lee Goldman, M.D., M.P.H., Joseph Cannon, B.A., and L. M. Davey, M.D.

ABSTRACT — The New Haven Medical Association surveyed the attitudes of local private practicing physicians toward various organizational practice patterns and reimbursement mechanisms. The response rate to a mailed questionnaire was greater than 75% among active physicians. 87% of the respondents expressed willingness to participate in some form of revised organizational pattern of medical practice. A large majority preferred a fee-for-service reimbursement system, but a significant number would permit non-physicians to participate in establishing doctors' fees. The results indicate that these physicians and their local leaders are prepared to play a major part in planning for future changes of their medical practices. It is hypothesized that studies in other locales will reveal similar attitudes and interest on the part of practicing physicians.

Introduction

Several of the current national health insurance proposals include financial incentives which would encourage doctors to provide coordinated, comprehensive, prepaid medical care. Although several recent surveys have focused on doctors' feelings about national health insurance, there are little data on their attitudes toward making specific changes in their own practices. In one of the rare existing studies, as many as 55% of Maine physicians would be willing to participate in some form of prepaid group practice "if satisfactory arrangements could be made." Within such an organized system, a majority favored the maintenance of traditional fee-for-service reimbursement.[1] A recent national poll conducted by the American Medical Association revealed somewhat similar opinions in that 30% of AMA respondents said some sort of "contract" system, usually a contract system which would pay the doctor on a fee-for-service basis, was their first preference for the arrangement of their medical practices.[2]

However, neither of these previous studies include the specific questions necessary to offer a basis for planning the implementation of any theoretical system. In January 1972, the New Haven Medical Association acted to rectify this omission.

Methods

A ten-page questionnaire was mailed to the 423 members of the New Haven Medical Association and to an additional 88 non-member physicians who had private offices in New Haven. The survey focused on doctors' interest in the possible establishment of a new city-wide medical system in which enrolled patients would prepay for comprehensive medical coverage.

Specific sections of the survey asked who should serve as the collection and disbursement agent for a prepaid plan; by what method physicians should be reimbursed in such a plan; who might participate in the establishment of fee schedules for doctors in the plan; and what contingencies might be needed if the sum of doctors' bills should exceed the sum of patients' prepayments.

Respondents were asked to indicate their degree of interest in participating in all of the alternatives. They could describe their feelings as *enthusiastic, agreeable, reluctant,* or *opposed;* or they could indicate that they had *no opinion.* Responses to all questions were cross-tabulated with respect to the physician's age, organization of present practice (solo or partnership), and degree of specialization (percentage of time devoted to giving primary medical care).

LEE GOLDMAN, M.D., M.P.H., Intern, Department of Medicine, School of Medicine, University of California, San Francisco.

JOSEPH CANNON, B.A., Director of Research and Evaluation, New Haven Health Care, Inc.

L. M. DAVEY, M.D., Associate Clinical Professor of Neurosurgery, Yale University School of Medicine; Associate Section Chief of Neurosurgery, Yale-New Haven Medical Center; and Past President, New Haven Medical Association.

This study was supported by a grant from the Connecticut Regional Medical Program (LG03-RM- 008-04), by the New Haven Medical Association, and by the South Central Comprehensive Health Planning Agency.

Results

A total of 284 physicians (75% of the active private practitioners who were polled) returned completed questionnaires.

The respondents' opinions regarding who should act as the collection and disbursement agent are shown in Figure 1. The alternative, "Medical Association incorporated as a foundation," was the most popular choice among all doctors regardless of age, organization of present practice, or degree of specialization. Non-profit insurance companies were significantly more popular than commercial insurance companies. Forty-nine percent expressed agreement to joining a closed-panel, multispecialty group practice. In fact, 67 doctors (24% of the respondents) would agree to shut their present offices and relocate their practices to become full-time members of a multispecialty group practice in New Haven. Public agencies, whether local or state or federal, were a distinctly unpopular choice as the collection and disbursement agent.

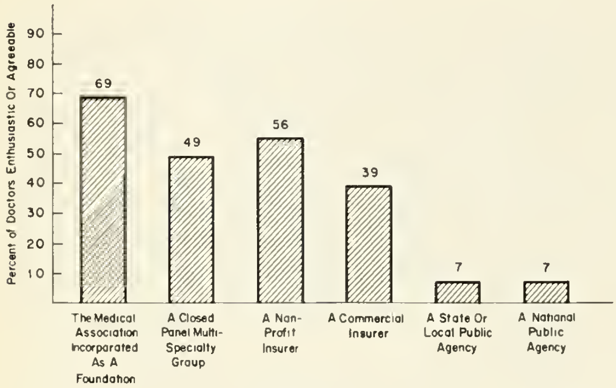

Figure 1

Doctors' attitudes toward who should serve as the collection and disbursement agent.

The single largest group, 194 physicians, favored the Medical Association incorporated as a foundation; 53 doctors who did not like that choice would agree to one of the other choices. Thus, 247 physicians (87% of the respondents) would tentatively agree to participate in some sort of prepaid plan.

Physicians of all ages, specialties, and types of practices preferred to be reimbursed on a fee-for-service basis (Figure 2). The more intricate "fee-for-service plus co-payment" (a small, direct payment by patient to physician over and above the basic patient premium) was less popular than fee-for-service alone. Reimbursement on a capitation or on a salary basis (with or without patient co-payment) was each favored by less than 25% (Figure 2). A total of 104 doctors (37% of respondents) agreed to be paid by one or another of the capitation or salary bases; however, all but 13 of these also agreed to fee-for-service remuneration.

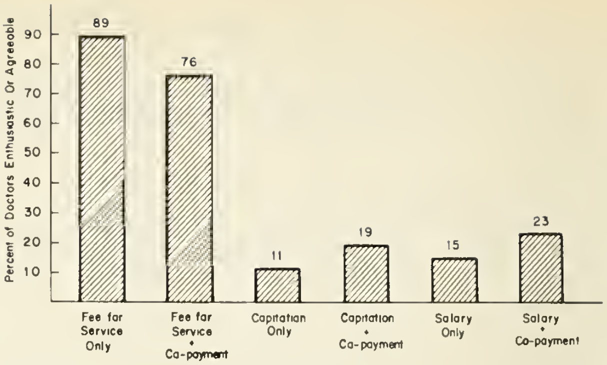

Figure 2

Doctors' attitudes toward various reimbursement mechanisms.

An essential step in the establishment of a prepaid medical plan is to formulate the specific aspects of a fair and adequate reimbursement system. Most respondents felt that doctors as individuals and the Medical Association as the representative of doctors should participate in the establishment of fee schedules for physicians (Figure 3). Insurance or consumer representatives would be approved by about ½ of the respondents, while either hospital or public agency participation appealed to less than 30%.

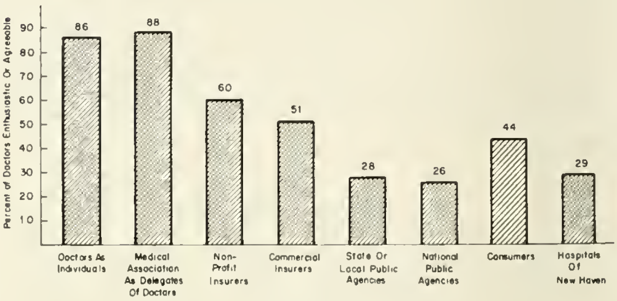

Figure 3

Doctors' attitudes toward possible participants in fee-setting decisions.

Younger physicians and those who are presently in partnership practices were significantly more likely to agree to lay participation in fee setting (see Table 1 for an analysis of attitudes toward consumer participation in particular). All types of respondents felt that physicians should compose between 2/3 and 4/5 of any fee-setting council; overall, 81% would delegate the ultimate rate-setting authority to a fee board if physicians comprised a majority of that board. Only 11% would participate in a system where fees were set by a council with doctors in a minority.

TABLE I

ANALYSIS OF DOCTORS' ATTITUDES TOWARD CONSUMER PARTICIPATION IN FEE-SETTING DECISIONS

		Age (yr)					*Organization of Present Practice*	
	All Respondents	30-39	40-49	50-59	60-69	70-79	*Solo*	*Partnership*
	(%)*			(%)			(%)	(%)
Enthusiastic	5	12	7	3	—	—	5	6
Agreeable	39	55	33	38	42	21	32	58
No opinion and No response	9	3	4	4	13	38	12	1
Reluctant	14	10	22	10	13	17	16	11
Opposed	32	19	34	46	32	25	35	24
				$p < 0.001$†			$p = .015$†	

*Percentages of 284 respondents.

†Results were analyzed by the "f" test of the differences among the means of the various subgroups.

If a doctor is reimbursed on a capitation (fixed remuneration per year for each patient under his care) or salary basis, the sum of physician reimbursement (plus administrative costs) can always be made equal to the sum of patient prepayments. With fee-for-service reimbursement, however, it would be possible for physicians' charges to exceed the sum of patient premiums. When asked how such an eventuality should be handled, 61% wanted to meet any deficits by raising premiums the following year. Only 84 doctors (31%) would agree to prorate their charges to the extent necessary to balance the budget for any individual fiscal year.

If those who would agree to some sort of salary or capitation reimbursement are combined with those who agree to fee-for-service subject to prorating, a total of 151 physicians (53% of the respondents) would agree to a system with a fixed sum of money available for their reimbursement.

Discussion

Although younger doctors and those presently in partnership practices were more likely to accept lay participation in fee-setting decisions, physicians of all ages, degrees of specialization, and types of present practices were generally in agreement on organizational and payment issues. Based on these responses, there are three main ways in which New Haven physicians might soon be able to join together to provide coordinated, comprehensive, prepaid medical care.

First, it may be that the 247 doctors who would agree to at least one of the organizational modes might all agree to participate in a fee-for-service medical foundation incorporated independently of existing medical societies. However, these 247 physicians do not presently agree on the key issue of the doctor's role in assuming budgetary responsibility in a prepaid plan.

Thus a second alternative might be to attract those 154 respondents who agreed to a system in which participating physicians would bear part of the fiscal risk — i.e., those who would accept either retainer reimbursement or fee-for-service remuneration subject to prorating. A suitable compromise for these physicians might be a "corridor" method whereby the doctors would contract with an insurance company to guarantee against a large deficit, with the doctors themselves absorbing small deficits.

A third possibility would be to construct a new facility for the 67 respondents who were willing to relocate to join a new, prepaid, closed-panel multispecialty group. However, these 67 physicians do not agree on the crucial reimbursement issue; also, the actual construction of a new large medical facility would constitute a major obstacle to the implementation of this alternative.

The New Haven Medical Association and local health planning agencies are currently investigating the practicality of all three of the preceding possibilities.

The 89% of New Haven private practitioners who would agree to join an organized form of medical practice is a larger proportion than that found in the studies conducted locally by the Maine Medical Association and nationally by the AMA. In all three studies, however, fee-for-service reimbursement was preferred over any of the types of retainer remuneration. It is hypothesized that most of the new findings of this study are as much due to the specific language of the questions (such as asking for opinions toward many different possibilities rather than asking for a single, first choice) as to any major differences in the actual opinions of the responding groups. Thus, it is felt that the results presented here may be generally applicable to many other locales. This hypothesis will be tested soon. The Rhode Island State Medical Society has recently sent to its members a questionnaire similar to the one used in the present study. The results of the Rhode Island survey are presently being analyzed.

The overall implications of the present study are that, while practicing physicians hope to retain some of the basic components of private practice, they express a strong interest in organizing to provide comprehensive care for patients who join a prepaid medical system. This survey also demonstrates that private doctors and their leadership on the local level are prepared to play a vital role in planning for the future of American medicine.

REFERENCES

1. Merrill, M. J., and Finnegan, F. T., Jr. Maine's physicians look to the 1970's: An analysis of physician attitudes regarding prepaid group practice, utilization and peer review, and the performance of Maine's health care system. J. Maine Med. Assoc. 62:74-77, 1971.
2. Private practice backed in poll. Am. Med. News 15:1, 8-9, June 19, 1972.

Artists — Attention!

GENERAL INFORMATION: The Connecticut Physicians' Art Association is planning the 1974 Art Exhibit in conjunction with the annual meeting of the Connecticut State Medical Society. The following is submitted for guidance to art hobbyists.

WHERE: Hartford Hilton Hotel; Hartford, Connecticut.

WHEN: April 30, May 1, 2, 1974.

ELIGIBILITY: Physicians (members of the Connecticut State Medical Society) and their families are cordially invited to join this group of art hobbyists. (In the case of children and other members of a physician's family, kindly indicate relationship to sponsor.) All previous exhibitors are invited to show their works at this meeting, and new exhibitors are welcomed. Works eligible will include oil, water colors, tempora, black and white etchings, photography, pastels, collages, mixed media and sculpture. Paintings over 24 x 30 will be hung only at the discretion of the art committee depending upon available space.

JUDGING: Art works will be judged in four categories: 1. children under 16 years (children over 16 will be judged with adults); 2. beginners; 3. intermediates; 4. professionals. Pictures should be framed and wired for hanging. The exhibit will be judged by professional artists.

COST: A hanging fee of two dollars ($2.00) will be charged for each entry and fifty cents (50¢) for children under 16 years with two entries per artist. (Space requirements have caused our limiting the entries to two this year, as just noted.)

HOW TO APPLY: Entry blanks will be mailed to former exhibitors and also may be obtained by writing to the addresses of the committee listed below. One-half of the entry blank should be submitted to me at the address below with your check prior to April 24, 1974. The other half should be attached to the picture. Make checks payable to the Connecticut Physicians' Art Association. Please fill in entry blanks completely so that the entry can be categorized early in the above noted four categories.

SUBMITTING: Art works must be submitted to a representative of the Art Association in the lobby of the Hartford Hilton Hotel on *Sunday, April 28, 1974 between the hours of 12 and 3 p.m.* Parking temporarily near the side entrance is possible for the few minutes involved in dropping off these art works. It may be possible to aid exhibitors with transportation of art works by contacting members of the committee noted below. These art works must be picked up on Thursday, April 25, 1974 between 12 and 4 p.m. Members of the art committee or their representatives will be in attendance at the display throughout the exhibit at the state meeting. The Connecticut State Medical Society, the hotel (nor the Art Association) can assume no responsibility for loss or damage of any cause to art works.

If further information is needed, the following persons may be contacted:

Eugene R. Rightmyer, M.D., President, 114 Sherman Avenue, New Haven; Mrs. Orvan Hess, Vice President, 29 Old Orchard Road, North Haven; Mrs. John Calogero, Chairman, Woman's Auxiliary, 148 Lawler Road, West Hartford; Mrs. Lowell Olson, 85 River Road, North Haven; Ann Murphy, 8 E. Normandy Drive, West Hartford; Mrs. John Shoukimas, 26 Pheasant Hill Drive, West Hartford; Edward Williams, M.D.,' 580 Hillside Avenue, Naugatuck; Kurt Oster, M.D., 880 Lafayette Boulevard, Bridgeport; Stewart J. Petrie, M.D., 56 Minerva Street, Derby; Mrs. Mark Hayes, 163 Ridgewood Avenue, North Haven; Mrs. Sidney Hurwitz, 35 Williamsburg Drive, Woodbridge; Mrs. A. von-Graevenitz, 2064 Chapel Street, New Haven; Mrs. Allen Silberstein, 51 Prospect Street, Portland; Mrs. R. Gilman, 3 Willowbrook Road, Storrs, Mrs. R. Bowen, High Street, Coventry; Mrs. Lawrence Koleshk.

Eugene R. Rightmyer, M.D., President
Mrs. Oran W. Hess, Vice President
Connecticut Physicians' Art Association

The CUP of the Connecticut State Medical Society

Ira Vaughan Hiscock, M.D. (Hon.), M.P.H., Sc.D.

My cup of ambition and early hope, inspired by symbols of colors of rainbows seen on the farm, in the State of Maine, and by admission 57 years ago to 3 good Schools of Medicine, was filled to overflowing with surprise and happiness last April, 1973. Friends informed me of the actions of the Council and of the House of Delegates to confer on me an Honorary M.D. What emotional and penetrating reactions were experienced! Your great honor leaves me without proper words for expressing my deep appreciation.

The CUP of CSMS has to do with urgently needed communication, understanding and participation for tomorrow. It was well fashioned in solid features of the Great Heritage of Connecticut Medicine. It was designed by skillful craftsmen whose interest in people and affection for the state are matters of record and cherished memory. Furthermore, The Women's Auxiliary is a valuable supporting partner, with the numerous programs of communication, scholarship assistance, and other constructive activities.

Four years after Connecticut entered the "sisterhood" of the United States in 1788, the Connecticut State Medical Society held its first meeting in Middletown. Important parts have been played by those of distinction in the medical profession, whose role it was "to learn the power of Medicine and the manner of healing, and, heedless of glory, to exercise that quiet art."

The Honorable General Assembly of the State of Connecticut passed an act of incorporation of the Connecticut Medical Society in May, 1792 (believed to be the first private charter granted by the State of Connecticut). The bill gave no authority to impose any fines for misbehavior; but it did give the authority to issue licenses to those found qualified to practice physic and surgery, and to confer honorary degrees in medicine, and to hold property.

Connecticut's heritage reminds us of a realistic cooperative venture in furthering information and understanding. In the first annual report of the State Board of Health of Connecticut in 1879, a plan was outlined "to bring clearly before the people of this state the value of sanitary science, and to show what it has accomplished, and can accomplish for families, communities, and states." A circular was sent to every clergyman in the state, "as the same causes which produce physical disease, foster also immorality, degradation, and social misery. Uninhabitable inhabitations, foul air, neglect of personal and public cleanliness, insufficient sanitary appliances, are not only factors of disease but of moral degradation. — The appeal of the clergy was rendered appropriate, too, from their position as public instructors, since they as a class are among the most public-spirited of our citizens, and from the nature of their work came into close relations with all classes of society." Nowadays the nurses are another group whose home visiting and personal care are widely spread among people in all walks of life. Much may be recorded of the roles of other professional and non-professional groups including "consumers." "Wherefore, by their fruit ye shall know them."

We note with satisfaction in 1973, the slogan on the envelopes of the American Medical Association "Join us, We Can Do More Together." Perhaps the first medical lobby in the Connecticut legislature was when the New Haven County petition with humility and modesty

> "humbly pray that your Honors will take our case into your wise consideration, and decree that your petitioners shall be formed into a body corporate and politic by the name of the Medical Society of New Haven County, for the purpose of collecting and preserving a collection of useful papers relative to the practice of medicine."

Yale's President Stiles is reported to have felt the lack of any training for the practice of medicine, along with observation of the success which medical institutions in other colleges had attained. The Degree of Doctor of Medicine was conferred on the first three medical graduates of Yale in 1814. The following quotation deserves recording again from

---

DR. IRA VAUGHAN HISCOCK, Emeritus Professor of Public Health and former chairman of the School of Public Health and of the University Board of Health, Yale University.

Prepared for meeting of Connecticut State Medical Society House of Delegates, Luncheon, December 13, 1973, Sheraton-Plaza Hotel, New Haven.

a lecture delivered in the Medical Institution of Yale College in 1853:

> "The result of this arrangement has been eminently happy; all unpleasant feeling was at once and forever allayed; the members of the Society became interested in the school; we have at all times had the benefit of their counsel and support, and it gives me pleasure to state that no instance of disagreement has ever arisen among the members of the board or between the School and State Society; on the contrary, each has regarded the other as a fellow laborer in the endeavor to promote and advance the interest of medical science."

Another organized effort was taken by the Connecticut State Medical Society at its meeting on May 14, 1899, with a Standing Committee "On Matters of Professional Interest in the State." A comprehensive report was given by Ralph A. McDonnell of New Haven, Dr. Simpson of Hartford, and Dr. Overlook of Pomfret, on the Spread and Prevention of Tubercular Disease. The New Haven County Anti-Tuberculosis Association, (later the Gaylord Farm Association, David Lyman, brilliant director and humanitarian) was incorporated on October 17, 1902. Among numerous other developments along the way, was the service to surgical science through the discovery of anesthesia by Horace Wells and the service to Medicine through the work of William Beaumont. Three public institutions were founded in Connecticut in each of which Dr. Cogswell was an active and important figure. These were the Retreat for the Insane in Hartford, the Connecticut General Hospital in New Haven on "Sodom Hill," and the asylum for the Deaf and Dumb in Hartford.

Scarcely less important was Cogswell's association with the beginning of the Medical Department of Yale College in which the State Medical Society had such an important part. Of this, he was successively Secretary, Vice President, and for ten years, President. He advocated, as the key for the clinical faculty of the Medical School, the calling of Nathan Smith of Hanover. Nathan Smith was undoubtedly a most outstanding figure in Connecticut medicine. From 1813 to 1828 he taught a generation of medical students in a school whose faculty and facilities were for the time unsurpassed. Furthermore, he assisted in the starting of three medical schools, at Bowdoin, Burlington, and Pittsfield, as well as two others, at Hanover and New Haven. Also noteworthy is Jonathan Knight, one of the original faculty at Yale, like Silliman picked by Dwight. Of him, Samuel C. Harvey wrote "A conservative surgeon! He never did an unnecessary or premature operation, but undoubtedly until his death, in the midst of the confusion of the Civil War, he was the leading surgeon in Connecticut." He was the first president of the American Medical Association and continued for a second term, because of the admirable way in which he at its first meeting guided the somewhat unwieldy body on its way.[2] We are all aware, too, that New Haven and Connecticut have been the scene of the annual meeting of the American Medical Association, as well as of numerous other national bodies.

Growing pressures, budgets, costs, organization of practices, and taxation cause anxiety among people *where they live*. The significance of the family unit as a basic social institution is as great as ever. Culture attitudes and behavior are influenced when recognition is given to the inter-relationships of the parts of our social structure. The Forgotten Lessons of History, the fact that people do not live under the domes of their state and national Capitols, and the importance of outcome determination (with better evaluation devices) are serious issues. "The road to solving community problems has been paved with good intentions."[3] Yet "Time eats all things" wrote Carl Sandburg in Remembrance Rock.

These are days of stress, myths and transition. Are we experiencing a cycle of lessened involvement by volunteers at a time of need for more continued action? These sometimes happy, sometimes gruelling, often rewarding days of the Holiday Season, seem to be more confusing than usual. Can we stop and take account of stock, with Faith and Hope, and then proceed with wiser involvement by all concerned? Fortunately, steps are being taken in some states to develop useful working relationships with the public on a wider scale then heretofore. "Get the message through" urges President-elect Todd of the A.M.A., a stimulating communicator!

Besides the program of the Connecticut Medical Society are those of many organizations utilizing means of communication. But there is great competition for attention such as expensive advertising of products and activities, much of which is not geared for improvement of health. The American Medical News[4] has written of projects, for example to meet such limited statements as: "If physicians don't get involved, they're going to be legislated out of business," and "You know we never hear from doctors," believing that if legislators seldom meet or hear from physicians, it is no wonder that they sometimes have distorted views. We hear of popular approaches, too, such as "key man" committees, in which individual physicians maintain close contact with lawmakers and others in their home districts.

It is essential that we build an effective mechanism to link the various components of private health care so that we may deal with government from the strength of unit — rather than from the weakness of fractionalism.[5] This situation calls for *leadership* of the highest order. In my nearly 60 years of public health experience, I cannot recall a period when voluntarism and voluntary agency demonstration of the values of working together were so vital for the benefit of people everywhere. Surely in planning for PSRO and for numerous other developments, in which nursing and hospital leaders are becoming increasingly involved, among other newer faces in the comprehensive planning picture, wisdom, courage, foresight, and ingenuity will be of vital significance. So much is pressing for partnership and cooperative action by statesmen!

A significant viewpoint was expressed by Doctor Charles A. Lindsley, health officer of New Haven, (soon to become a member of the first state Board of Health) in his annual report for 1874:

> We are not content ourselves with merely playing the role of a nuisance committee, abating the petty contentions of neighbors about privies and pigsties. But our responsibilities cover a far broader, more extended and comprehensive field.
>
> When the public comes to comprehend our true official character — we shall be expected — to become a source of information in regard to all questions of public hygiene. We are to know and be able to inform and advise in regard to everything connected with the physical well being of our fellow citizens.

Physicians have contributed mightily to the progress of public health in Connecticut since the formation of the local and the state societies. Even for the early development of vital statistics in the state, much credit is due Doctor C. A. Lindsley, his able successor Doctor Joseph H. Townsend, and Professor William H. Brewer who for many years served as President of the State Board of Health.

Communication with interpretation, understanding and knowledge, and participation with informed interested citizens are fundamental.[6] Over the years, the voluntary health agencies, including medical, dental, legal and nursing societies, among others, have played a stimulating part in cooperating with the public and other private agencies, in rendering advisory assistance, and in complementing and supplementing services which the public agencies were not equipped to render. My personal appreciation is especially great, for example, for the help and wise suggestions and opportunities for frank discussions given to me by individuals of the Connecticut Bar and of local and state medical, dental and nursing society committees as well as by businessmen and Chambers of Commerce during the course of some 50 community health surveys and appraisals conducted in Connecticut by official request since 1920.[7]

I have lived in Connecticut during much of the evolution of the so-called modern public health campaign. Hundreds of physicians helped in forming conclusions and developing legislative, educational and administrative programs. Meanwhile, they helped me — an observer and partner — and the Yale Department of Public Health, in steering my temperamental aims, premature or conservative, and in strengthening my competence to assist while we were seeking constructive action by all concerned. More often than not you all helped to make work indistinguishable from pleasure.[8] While we all have not always seen eye to eye on complex changing issues and opportunities, we have obtained, usually by exchange of viewpoints arriving at better mutual understanding, some useful compromises, consents, or ultimate consensus in order to allow for constructive forward movement toward community progress. Your understanding and participation for the benefit of people come to mind with satisfaction, as I review a dozen major projects and developments, filed for illustration with the Connecticut State Medical Society, as a part of this presentation.

Here in our "cosy" wealthy Nutmeg State we have a stimulating medical history with a community of 3,000,000 people, with a reputation for thriving local autonomy, "pride and prejudice." We live in a glorious country in a beautiful state, with a motto to cause us to think ahead — Qui Transtulit Sustinet, or He Who Transplants Must Sustain. With the tremendous lure of this spectacular land, with superior vacation spots, lovely gardens and trails, trout streams, golf courses, lakesides, swimming and sailing attractions on shore resorts, our people have unlimited opportunities and responsibilities.

The CUP of the Connecticut State Medical Society has been filled continuously with leadership since it was formed, in a design for helpful influence and cooperative service to provide good health care and preventive measures. An assessment of what the future holds requires consideration of strengths and weakness of past experience, of the changes likely to occur in the realms of scientific, administrative and socio-economics issues.[9] In the promising years ahead, may the Society and its devoted members continue their alertness and energies to keep an overflowing cup containing necessary ingredients of courage, skill and wisdom, with judgement for meeting complex conditions of a pioneering people.

REFERENCES

1. Prepared for meeting of Connecticut State Medical Society House of Delegates, Luncheon, December 13, 1973, Sheraton-Plaza Hotel, New Haven.
2. The Heritage of Connecticut Medicine, New Haven, 1942, p. 223. This volume was drawn upon liberally without credit to authors.
3. Solving of Community Problems, Community Research Associates, New York, p. 94, 1973; and Health is a Community Affair, National Commission on Community Health Services, Harvard Press 1966.
4. Publications of May 28, 1973, May 22, 1973 and June 25, 1973 have given practical examples.
5. Paul Doolan, M.D., writing concerning fulfilling human expectations for tomorrow, referred to such problems as: institutions with self-images vs. those with personalities, the public vs. the private sector, physicians vs. nurses, sociologists vs. planners, the rich vs. the poor, the provider vs. the consumer, the insurance companies vs. sound security administration, center city vs. rural regions, the emergency room vs. the laboratory, and said "are we not naive to hope for a blend?"
6. Thirty years ago was published an illustrated booklet, emphasizing some features of how "for 150 years the physicians of the Connecticut State Medical Society have protected the health of the people of Connecticut, 1792-1942."
7. Published copies in local health departments and libraries. See also More Light on the Heritage of Connecticut Medicine, Connecticut Medicine, Vol. 30, No. 12, p. 875.
8. But for friends in CSMS during the past 60 years, I would have been "alone in the crowd" often, without serenity of reasoning in a stimulating atmosphere of congenial companionship.
9. A Critical Review of the Purposes of the Connecticut State Medical Society, April 5, 1973.

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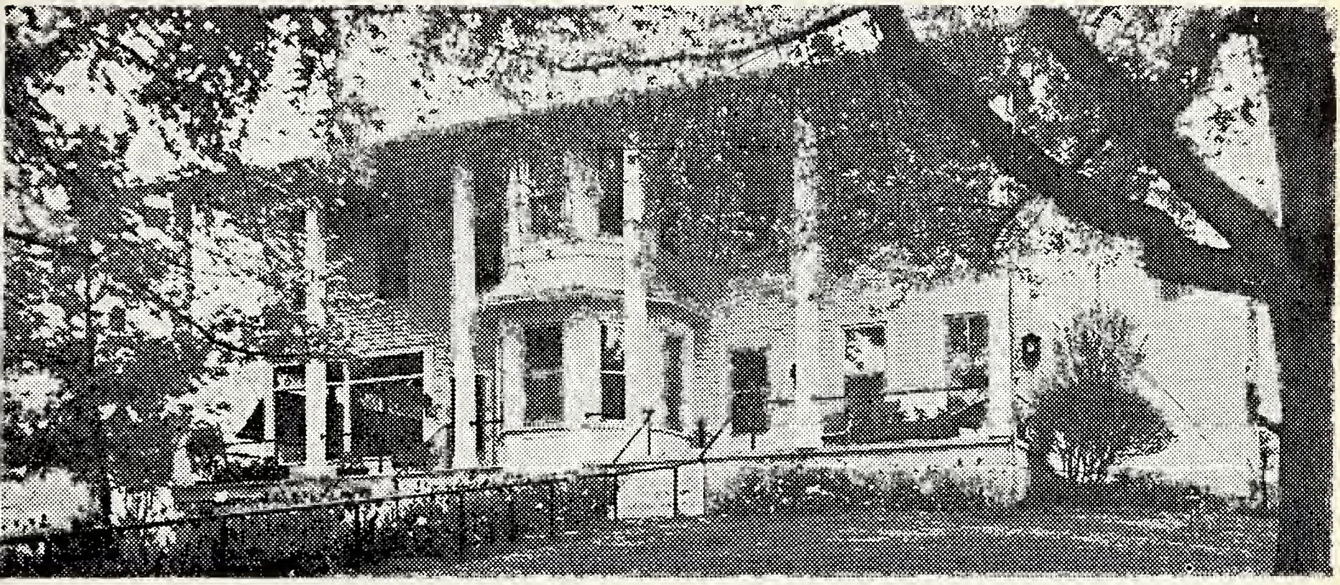

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Mortality from Diseases of the Heart Connecticut 1950-1971

Barbara W. Christine, M.D., M.P.H., Paul D. Sullivan, B.A.
and Donald L. Ray, B.A., M.A.

ABSTRACT — **Heart disease remains the leading cause of death in Connecticut ranking first for all age groups 45 years and older and accounts for every other death of persons aged 85 or older. The principal type by far is ischemic heart disease. Deaths from ischemic and "other heart diseases" have increased while those from rheumatic heart disease, hypertensive heart disease, chronic endocarditis and myocardial insufficiency have lessened in the last two decades.**

Introduction

Since the 1940's slightly more than half of all deaths in Connecticut each year have been due to diseases arising in the cardiovascular-renal system including heart disease, stroke, diseases of the arteries, hypertensive disease, nephritis, and nephrosis.[1] In 1900, by comparison, when the total crude mortality rate from all causes was over twice the current level, tuberculosis and pneumonia were leading causes of death and less than 1 death in 5 was attributed to cardiovascular-renal diseases.

This fundamental change has come about as mortality from pneumonia and tuberculosis was greatly reduced and as the proportion of the Connecticut population aged 65 and older nearly doubled in the last 50 years bringing into much greater prominence diseases which strike hardest in later years of life. While the risk of this group of diseases has risen sharply in this century relative to other causes of death the overall risk, independent of changes in the age structure of the population, declined by one-third from 1922 to 1970.[1,2]

The evolution of classification of the cardiovascular-renal diseases complicates the separating out of individual types for study over time. Nonetheless, it is reasonably certain that diseases of the heart accounted for well over half of the total mortality during the past 40 years and nearly three-quarters since 1950. The risk of death from heart disease, adjusted for age, reached a peak in 1951 in Connecticut and has subsequently declined. It remains the leading single cause of death with twice as many deaths each year as the second leading cause, cancer. This study will examine mortality from diseases of the heart among Connecticut residents in the period 1950-1971 with special emphasis on comparisons between five-year periods presenting data on such factors as principal types, sex, age, county of residence, and period of occurrence.

Mortality rates alone can give only an incomplete picture. While data on prevalence of equal precision and detail is not available for Connecticut, estimates can be made based on past surveys. In 1960-1962 the National Health Survey of the United States Public Health Service estimated the prevalence rate for ages 18-79 of coronary heart disease alone at 2.8 per 100 for the country as a whole.[3] Applying this rate to the appropriate portion of the Connecticut population in 1971 gives an estimated number of 55,700 persons with coronary heart disease at these ages. The desirability of gaining better understanding both to prolong life in those already afflicted and also prevent, as far as possible, the occurrence of heart disease is evident.

Methodology

Data for this study was obtained from the Connecticut State Registration Reports prepared by the Public Health Statistics Section of the state health department. Rates were computed using midyear population estimates adjusted according to the 1950, 1960 and the 1970 U.S. censuses. The Connecticut rates were age-adjusted directly to the 1939-1941 U.S. Life Table population, both sexes combined. County crude rates were age-adjusted indirectly from the Connecticut 1950-1954 age-specific rates and estimates of county population from the 1970 and earlier censuses. The mortality rates for the United States were adjusted to the racial distribution in Connecticut according to age. This was done for two reasons. Connecticut has a somewhat lower percentage non-white population than does the United States.[4] There were also important differences in U.S. age-specific mortality rates by race; those for non-whites were higher up to age 75 while the

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DR. BARBARA W. CHRISTINE, Chief, Chronic Disease Control Section; PAUL D. SULLIVAN, Research Analyst, Chronic Disease Control Section; DONALD L. RAY, Special Assistant, Chronic Disease Control Section; all of the Connecticut State Department of Health, Hartford, Conn.

rates for whites were substantially higher at ages 75 and older.[5]

While consistency in diagnostic and coding practices for heart disease has improved over the years, the change from the seventh to the eighth revision of the International Classification Code of Diseases in 1969, as well as the earlier change from the sixth to the seventh revision in 1958, apparently resulted in no discrepancies in the rates for all heart diseases combined. Individual causes within the group of heart diseases were affected, however.

Major Cause of Death

Heart disease was the leading cause of death in Connecticut throughout the 1950-1971 period. In 1970 it caused 39.3 percent of all deaths in the state for both sexes combined: 5,674 deaths or 40.0 percent of the total male deaths and 4,515 deaths, or 38.4 percent of the total among females (Tables 1, 2). Heart disease is a comparatively minor cause of death below age 25 accounting for between 1.4 and 4.5 percent according to age in 1970. From age 25 on the percent climbs steadily reaching 50.5 percent of total deaths at age 85 and over in both sexes combined.

From 1950 to 1970 heart disease mortality as a proportion of all deaths declined from 42.2 to 39.3 percent with somewhat more of this decline represented in the 1950 to 1960 decade. Although the proportion of Connecticut mortality attributed to heart disease has declined among adults in all age groups the decline was most marked for ages 55-64 and least marked in ages 85 and over. The greatest proportionate decline in heart disease deaths over age 34 occurred among females aged 35-64. The importance of heart disease as a fatal disease among children under the age of one apparently increased, especially in the 1960's. Discussion of this trend appears below.

Types of Heart Disease

Ischemic heart disease is the main type of cardiac death and its preponderance relative to other causes increased for both sexes throughout the 1950 to 1970 period (Table 2). Between these two years it rose from 81.1 percent of male cardiac deaths to 94.5 percent, a gain of 13 percentage points; and from 69.9 percent of female heart disease deaths to 92.6 percent, a gain of 23 percentage points. In numbers of deaths this represents an increase of 1,607 among males and 1,764 among females.

Deaths from hypertensive heart disease have decreased, both proportionately and absolutely for each sex in each five-year interval since 1950 although a classification change in 1969 exaggerated the drop from 1965 to 1970. While this disease accounted for 10.9 percent of cardiac deaths in males and 19.8 percent in females in 1950, the percentages decreased to 0.7 and 1.2 in 1970.

The total number of chronic rheumatic heart disease deaths in both sexes combined has fallen over the two decades, despite an increase in both sexes from 1955 to 1960. Between 1950 and 1970 the number of deaths in males fell from 128 to 97, and deaths of females fell from 145 to 134.

TABLE 1

PERCENTAGE OF DEATHS FROM ALL CAUSES ATTRIBUTABLE TO HEART DISEASE BY AGE, SEX, AND YEAR — CONNECTICUT, 1950, 1960, 1970[1]

	Male			*Female*			*Total*		
Age	*1950*	*1960*	*1970*	*1950*	*1960*	*1970*	*1950*	*1960*	*1970*
All Ages[2]	43.5	41.0	40.0	40.7	38.9	38.4	42.2	40.1	39.3
Under 1	—	0.1	2.0	0.3	0.4	2.7	0.1	0.3	2.3
1-4	—	2.0	5.2	0.2	—	3.7	0.7	1.2	4.5
5-14	2.9	2.8	1.6	—	4.1	1.2	1.7	3.3	1.4
15-24	2.8	2.8	1.5	12.3	1.5	2.2	5.7	2.4	2.2
25-34	12.6	8.5	7.2	11.2	13.9	8.5	12.0	10.7	7.7
35-44	32.1	31.9	28.3	19.1	13.6	10.2	26.8	25.2	21.1
45-54	44.6	43.0	41.7	27.8	24.6	19.5	38.4	36.4	33.2
55-64	49.6	46.0	44.4	39.8	33.3	29.7	48.6	41.4	39.5
65-74	49.3	45.9	44.4	45.1	45.6	42.8	47.5	45.7	43.8
75-84	48.3	45.6	43.6	51.1	47.4	45.3	49.8	46.5	44.5
85+	51.0	49.6	48.9	51.5	47.7	51.5	51.3	48.4	50.5

[1] International list numbers, 1950, 1960:410-443; 1970:390-398, 402, 404, 410-429.

[2] Includes unknown age.

[5/15/73]

Chronic diseases of the endocardium and other myocardial insufficiency have declined considerably in relative importance, although the precipitous drop in these deaths between 1950 and 1955 represents in large part a change in classification procedures.

The category "Other heart diseases" assumed somewhat more importance in the 1960-1970 period but in 1970 still represented only 2.6 percent of all heart disease mortality. Only in this category and that of ischemic heart disease do male deaths consistently outnumber female deaths; hypertensive and rheumatic heart disease have generally caused more deaths among women than among men.

Mortality — By Age

During the period 1950-1971 a total of 209,777 deaths were attributed to diseases of the heart, 117,852 among males and 91,225 among females. The annual crude mortality rate per 100,000 population ranged from a high of 406.3 in 1951 to a low of 333.5 in 1971, a difference of 17.9 percent. After the mortality rates by age were adjusted to a common standard population to remove the effects of changes in the age distribution of the Connecticut population over time, the difference in the two adjusted rates for these years became 27.6 percent (Figure 1).

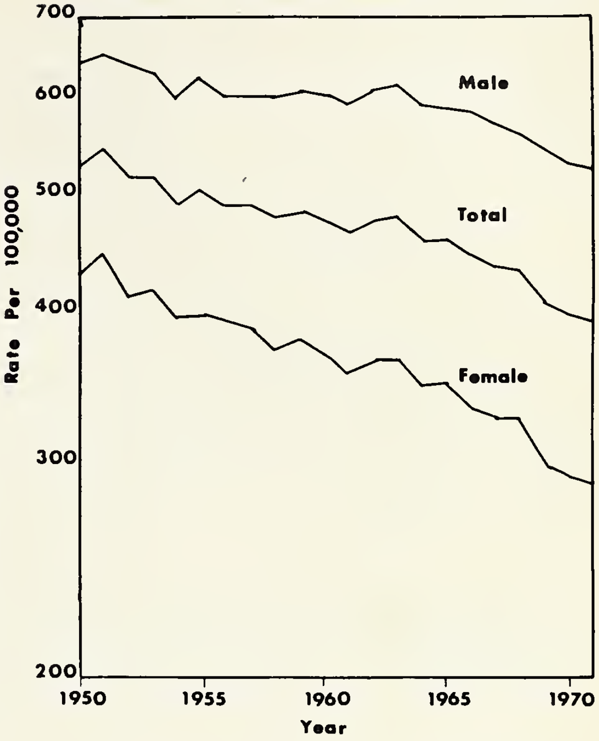
The crude mortality rate for males was slightly over a third greater than that for females in the 1965-1969 period (Table 3). After adjustment for age the excess of male mortality was considerably greater, increasing from a margin of 51 percent in 1950-1954 to 74 percent in 1965-1969. While the age-adjusted mortality rate for each sex has declined, the substantially greater decrease for females was due in large measure to a nearly level rate for males in the mid and late 1950's and early 1960's (Figure 1).

Between the first and last five-year periods, although the number of deaths in males increased from 23,686 to 28,924, the age-adjusted rate fell by 10 percent from 633.1 to 569.8, while it went down by 22 percent among females from 419.1 to 327.1 giving a decline for both sexes combined of 16.2 percent.

Age-specific mortality rates per 100,000 from heart disease, except those for children under one year of age in the 1960's, were less than 5.0 in each five-year period through ages 15-24 (Table 3). From ages 25-34 on the rates began rising by a multiple of two or greater for each successive ten-year increase in age, this factor of increase declining from about 6 for ages 35-44 to approximately 2 for ages 85 and above. Thus, an age curve for heart disease mortality rates plotted semilogarithmically would show a smooth rise from age 25 on and at a decreasing rate of increase.

Figure 1

Age-Adjusted mortality rates per 100,000,[1,2] diseases of the heart-Connecticut 1950-1971



[1] International list number 1950-1968: 410-443; 1969-1971: 390-398, 402, 404, 410-429

[2] Adjusted directly to U.S. life table 1939-1941, total population

Except for the ages under 1 and 5-14 years, mortality rates by age were consistently higher for males in the study years. The ratio is highest between ages 35 and 54, and the male mortality rate in that age group ran between three and four times the rate for women in each five-year period. In older age groups the difference was not as pronounced and over age 85 male mortality rates exceeded female rates by only a few percent. Thus, female heart disease mortality is based somewhat more toward the older ages than male is evidenced by a female median age approximately 7 years higher than that for male deaths, 77.6 years versus 70.5 years in 1965-1969.

Over two-thirds of Connecticut heart disease deaths occurred at ages 65 and over (Figure 2) in both the first and last five-year periods. The 65-74 and 75-84 age groups each accounted for more than one quarter of the total, and the 85 and over group for about 16 percent in 1965-1969. Approximately

TABLE 2

DISTRIBUTION OF HEART DISEASE DEATHS BY MAJOR TYPES AND SELECTED YEAR OF OCCURRENCE
CONNECTICUT, 1950, 1955[1], 1960, 1965, 1970

			Year									
I.C.D.	*Type of*		*1950*		*1955*		*1960*		*1965*		*1970*	
No.[2]	*Heart Disease*	*Sex*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
410-414	Ischemic Heart	M	3755	81.1	4382	86.9	4896	89.9	5253	91.2	5362	94.5
(420,422.1)	Disease	F	2419	69.9	3032	79.3	3388	82.3	3924	85.8	4183	92.6
		T	6174	76.3	7414	83.6	8284	86.6	9177	88.8	9545	93.7
402,404	Hypertensive	M	503	10.9	389	7.7	249	4.6	205	3.6	39[3]	0.7
(440-443)	Heart Disease	F	684	19.8	533	13.9	423	10.3	337	7.4	54[3]	1.2
		T	1187	14.7	922	10.4	672	7.0	542	5.2	93[3]	0.9
393-398	Chronic Rheumatic	M	128	2.8	119	2.4	128	2.4	115	2.0	97	1.7
(410-416)	Heart Disease	F	145	4.2	115	3.0	159	3.9	129	2.8	134	3.0
		T	273	3.4	234	2.6	287	3.0	244	2.4	231	2.3
424,428	Chronic Diseases of	M	166	3.6	78	1.5	66	1.2	41	0.7	25[3]	0.4
(421,422.0,	Endocardium and other	F	156	4.5	88	2.3	50	1.2	69	1.5	24[3]	0.5
422.2)	Myocardial Insufficiency	T	322	4.0	166	1.9	116	1.2	110	1.1	49[3]	0.5
390-392, 420-423,	Other Heart	M	76	1.6	73	1.4	105	1.9	145	2.5	151	2.7
425-427, 429	Disease	F	56	1.6	56	1.5	97	2.3	114	2.5	120	2.7
(430-434)		T	132	1.6	129	1.5	202	2.1	259	2.5	271	2.6
390-398,402,	Total Heart	M	4628	100.0	5041	99.9	5444	100.0	5759	100.0	5674	100.0
404,410-429	Disease	F	3460	100.0	3824	100.0	4117	100.0	4573	100.0	4515	100.0
(410-443)		T	8088	100.0	8865	100.0	9561	99.9	10332	100.0	10189	100.0

[1] Total of percentages may not add to 100.0 because of rounding.

[2] The codes listed first refer to the Eighth Revision of the International List, those in parentheses are the corresponding categories for the Seventh Revision.

[3] Frequencies affected materially by the adoption of the Eighth Revision of the International List.

TABLE 3

TOTAL NUMBER OF DEATHS, CRUDE, AGE-ADJUSTED, AND AGE-SPECIFIC MORTALITY RATES PER 100,000 POPULATION FROM DISEASES OF THE HEART, BY SEX, AND PERIOD OF OCCURRENCE, CONNECTICUT, 1950-1969[1]

	Male				*Female*				*Total*			
Age	*1950-1954*	*1955-1959*	*1960-1964*	*1965-1969*	*1950-1954*	*1955-1959*	*1960-1964*	*1965-1969*	*1950-1954*	*1955-1959*	*1960-1964*	*1965-1969*
Total Deaths	23,686	25,757	28,115	28,924	18,161	19,779	21,440	22,810	41,847	45,536	49,555	51,734
Crude Rate	454.3	437.4	432.8	409.3	337.5	324.4	316.7	306.4	395.0	379.9	373.5	356.5
Age-Adj. Rate[2]	633.1	606.5	602.2	569.8	419.1	385.7	360.3	327.1	519.8	488.4	470.8	435.5
Under 1	1.7	—	10.8	45.4	1.8	1.5	11.9	21.2	1.8	0.7	11.4	33.6
1 - 4	1.4	1.0	1.1	1.6	1.0	0.6	0.4	0.9	1.2	0.8	0.7	1.3
5 - 14	0.7	0.6	0.8	0.5	0.3	1.1	1.1	0.6	0.5	0.8	0.9	0.6
15 - 24	4.4	2.5	2.6	1.9	3.7	2.1	1.7	1.7	4.1	2.3	2.2	1.8
25 - 34	19.4	17.4	13.1	13.2	10.3	8.0	7.5	4.8	14.8	12.6	10.3	9.0
35 - 44	106.4	99.3	99.8	89.6	35.3	28.4	28.6	25.1	70.2	63.1	63.4	56.5
45 - 54	401.9	365.8	387.8	361.0	138.4	107.9	100.6	93.3	267.9	235.2	241.9	223.6
55 - 64	1099.2	1055.1	985.6	947.7	522.4	450.7	372.0	320.1	806.2	742.9	665.2	619.8
65 - 74	2364.5	2299.8	2308.9	2193.0	1490.6	1377.5	1303.1	1165.6	1898.2	1802.3	1756.5	1610.9
75 - 84	5023.5	4716.9	4824.6	4674.6	4089.4	3786.0	3588.9	3350.9	4489.1	4178.9	4096.9	3872.0
85 +	10178.8	10256.6	9741.5	8495.5	9494.1	9427.9	9032.5	8173.7	9748.9	9732.5	9287.6	8285.7

[1] International list numbers, 1950-1968: 410-443; 1969: 390-398, 402, 404, 410-429.

[2] Adjusted by the direct method to the U.S. life table of total population, 1939-1941.

[5/15/73]

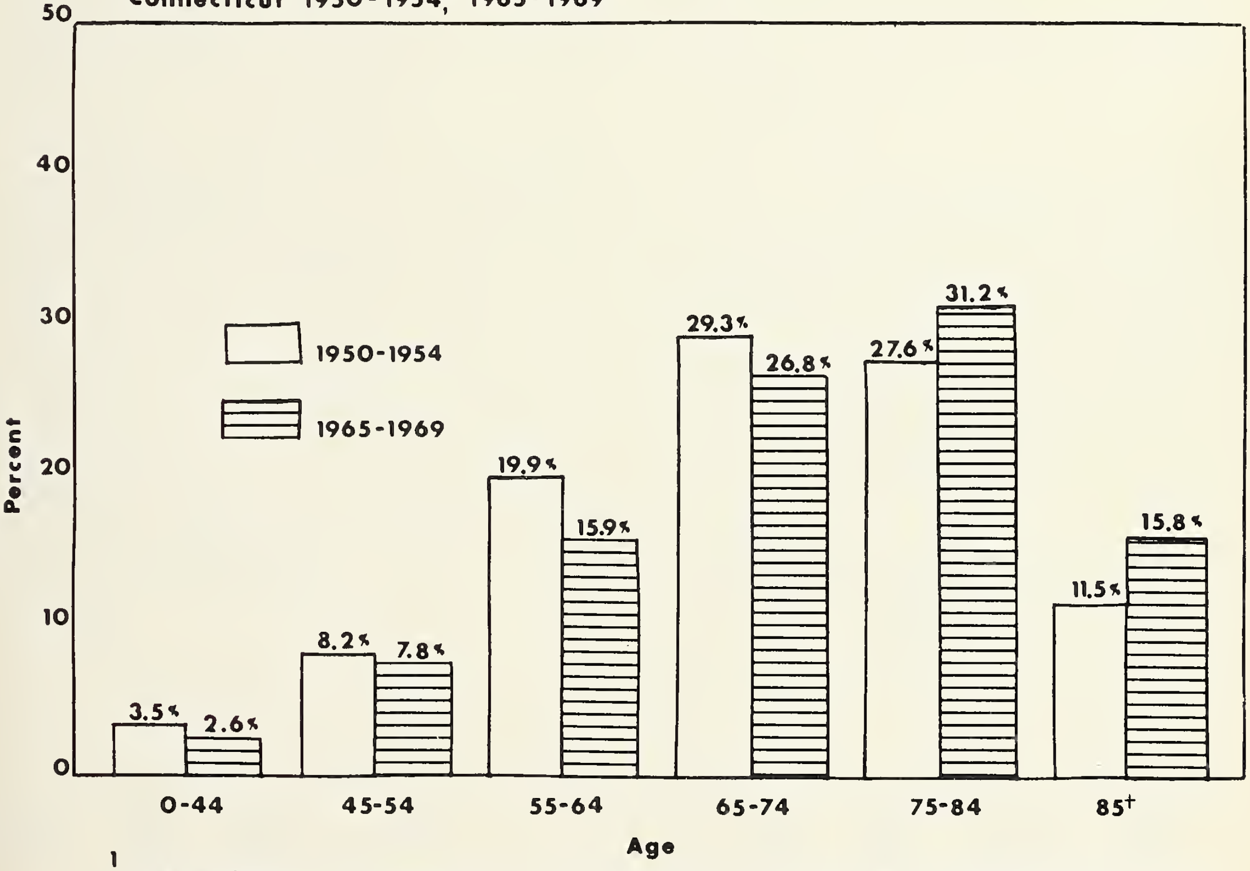
sixteen percent is now represented by the 55-64 group, although this group has been proportionately more important in past years for the age distribution of heart disease deaths has shifted markedly to persons over the age of 75. This resulted in large measure from an increase in the percentage of the Connecticut population of 75 and older. The median age of all cardiac deaths has gone up from 71.4 to 74.0 between the 1950-1954 and 1965-1969 periods, as the 75-84 age group and the 85 and over group have each increased by about 4 points their percent share of total deaths while there has been a 6.5 percentage point decline for ages from 55-74. The proportion of deaths among all persons under age 55 has changed little declining from 11.7 to 10.4 percent from the first to the last periods.

The greatest declines in age-specific mortality rates between 1950-1954 and 1965-1969 for both males and females, occurred in the 15-34 age range with deaths from chronic rheumatic heart disease alone declining from 112 to 29. For these periods declines of 30 to 40 percent appeared in ages 35-64 among women though not among men. The percent declines for ages 65-84, though smaller, were also much larger for women than for men. In the 85 and over group, on the other hand, female heart disease mortality fell only 14 percent while the male mortality rate fell 17 percent. Since 1965-1969, however, the rate in males aged 85 and over has increased slightly while that for women has decreased.

For ages 1-14 years, at which heart disease deaths are uncommon, male and female death rates are quite similar. In children under one year of age, heart disease mortality rates for both sexes combined increased many times over during the 1950-1969 period (Figure 3). However, they have dropped sharply since 1969 from a high of 63.6 in that year to only 4.4 in 1971.

Figure 2

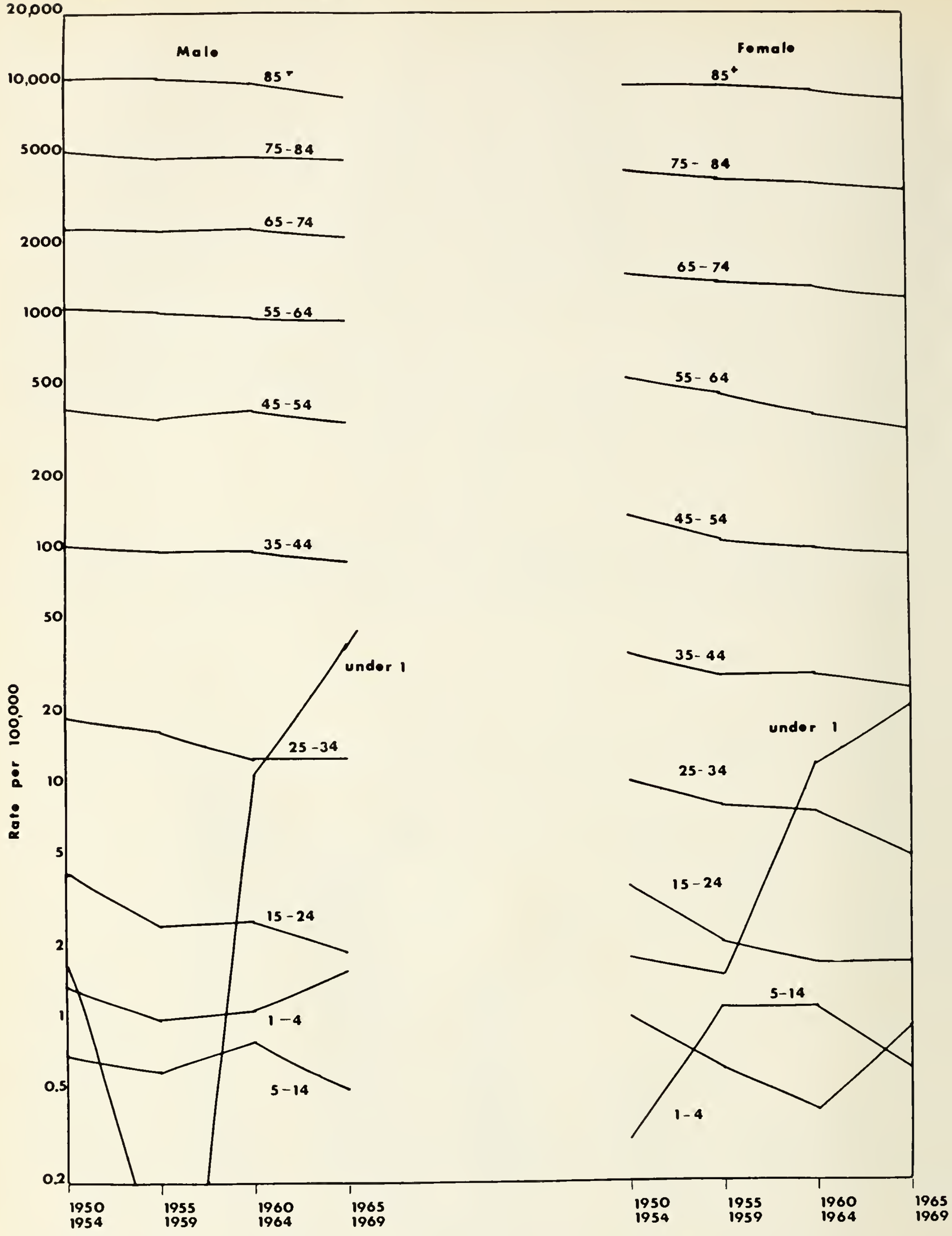
Percent age distribution of heart disease deaths, both sexes combined-Connecticut 1950-1954, 1965-1969[1]



[1] International list numbers 1950-1968:410-443, 1969:390-398, 402, 404, 410-429

Figure 3

Age-Specific mortality rates per 100,000, diseases of the heart, Connecticut 1950-1969



[1] International list numbers 1950-1968: 410-443; 1969: 390-398, 402, 404, 410-429

Several points deserve mention in connection with this reported increase in the 1960's. First, mortality rates for the two extremes of the age distribution, under age 1 and 85 and over, since they are based on relatively small populations, are particularly subject to random year-to-year variation. Another possible source of fluctuation in the rates over time is change in medical opinion and concept surrounding infant mortality. Finally, data for the United States through 1968 also indicate a rise in the under age 1 rate during the 1960's though the racially adjusted U.S. rate in 1968, at 11.0 was one-third the Connecticut rate in the 1965-1969 period, 33.6. In all, the rates for children under one year of age should be interpreted with caution.

Mortality Rates by County

New Haven, Windham, and Tolland counties have had relatively high heart disease mortality rates per 100,000 in the four five-year periods while Middlesex county has been consistently low in mortality compared to all counties. Heart disease mortality in 1965-1969 varied from 305.7 in Middlesex to 362.8 in New Haven, while Litchfield and Windham each showed relatively high rates of 337.0 and 336.2. The mortality rate has declined in all counties from 1950-1954 to 1965-1969, most markedly in Hartford county and least in Litchfield and Middlesex.

Comparison with U.S.

Relative to United States heart disease mortality, recent Connecticut mortality rates appear to be somewhat lower, especially among males. The difference is most favorable for the state in ages 85 and over.

For each sex the age-adjusted mortality rate in Connecticut exceeded the United States rate in 1950 similarly adjusted and dropped below it by 1968. For males the ratio of the state to the national rate decreased from 1.03 in 1950 to .94 in 1968, and for females this ratio fell from 1.07 to .97. The greatest changes in Connecticut's relative position in mortality between 1950 and 1968 were in the 15-24, 55-64 and 85 and over age groups.

Summary

Total heart disease mortality rates have fallen for both sexes since 1950 with the age-adjusted rate for females showing the faster decline. For adults, mortality rates have fallen in all age groups, though by the least degree for those 75 and above.

Mainly because of a corresponding change in population distribution the age-distribution of heart disease deaths has shifted to ages 75 and over and somewhat away from ages 55-74, while mortality in younger ages has remained relatively low. The median age has gone up slightly between the first and last five-year periods, and now stands at 74 years of age for the two sexes combined, and somewhat higher for women than for men.

Middlesex has had lower heart disease mortality rates than the state's other seven counties, of which New Haven, Windham, and Tolland have generally had relatively high rates. The greatest decline in mortality occurred in Hartford and the smallest in Litchfield and Middlesex.

Connecticut mortality, higher than United States mortality in 1950, dropped below it in 1968, and the disparity between the state and national rates in that year was greater among males.

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The Use and Mis-Use of Ambulance Services by the Population Using the Emergency Department at the Hospital of St. Raphael

Samuel B. Webb, Jr., Dr. P.H. and John Christoforo, M.D.

Abstract — It has been shown that in the New Haven area the present system for emergency care is organized quite well to respond to trauma in that available transportation and institutional facilities are well located in terms of the existing distribution of traumatic emergencies.[1] However, this study questioned whether the present system of maximum medical response to all individuals (sending out highly-trained and efficient fire emergency rescue squads and, if necessary, ambulances) calling for assistance is economically or medically justified because while over 20% of trauma victims arrived by ambulance or with police assistance, 90% of these did not require hospitalization.[1]

Purpose of Study

This study has two objectives: 1) To analyze and evaluate the utilization of ambulance services by one emergency room population (including non-trauma patients); and 2) To estimate grossly the approximate financial component of the ambulance part of the New Haven emergency response system for this patient population. By doing this, it is felt that a partial determination of the economic and medical justification of a single maximum medical response system to all individuals calling for assistance will be made. It is hoped that this will aid lay and medical personnel interested in modifying or improving ambulance utilization, a key segment of any existing community emergency medical system.

Methodology

Records of all emergency patients arriving by ambulance at the Hospital of St. Raphael were analyzed retrospectively according to disposition status (admitted to the hospital or discharged) and payment category (non-welfare or welfare) for a period of 15 months (March, 1969 through May, 1970). In addition, a 10% random sample of both trauma and non-trauma patients arriving by ambulance during this period was reviewed and a medical determination made regarding the appropriateness of ambulance use based upon a patient's chief complaint, therapy instituted, and final disposition. Gross cost estimates were based upon the average cost for ambulance round trips within Connecticut by commercial ambulance purveyors, and the average reimbursement for an ambulance, round trip, in this area (New Haven) by the Department of Welfare.

Findings

A. Admission and Discharge Patterns of Ambulance Users:

During the study period there were a total of 4,321 visits to the St. Raphael's emergency service by patients utilizing ambulances. Slightly over half of these patients were admitted (51.4 percent) while 48.6 percent were discharged following treatment — a significantly different disposition pattern from the study mentioned earlier, which included only trauma patients.

When isolated according to ability to pay (welfare vs. non-welfare), a distinctly different picture emerges. The non-welfare patients comprise 90 percent of all patients using ambulances and account for 95 percent of all ambulance patients admitted from the emergency department to the hospital, and 84 percent of ambulance patients arriving at the emergency department and later discharged. Conversely, while welfare patients account for 10 percent of all patients using an ambulance to reach the hospital, this group comprises but 5 percent of all admissions but 16 percent of all discharges.

The difference between the final disposition of patients becomes stronger when welfare and non-welfare categories are examined as homogeneous groups. Welfare patients using ambulances are generally discharged from the hospital. While almost 74 percent of the total were discharged during the study period, in one month (June, 1969) over 96 percent of all welfare patients using ambulances to

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DR. SAMUEL B. WEBB, JR., Assistant Professor of Public Health and Associate Director of the Program in Hospital Administration, Yale University School of Medicine, New Haven, Conn.

DR. JOHN CHRISTOFORO, Director of Emergency Services, the Hospital of St. Raphael, New Haven, Conn.

come to the emergency department were discharged. Moreover, the range varies from 57.1 percent being discharged to 96.2 percent. There is a similar wide variation in admission patterns from a low of 12.0 percent in January 1970 to a high of 42.9 percent in July 1969.

No such wide variation is observed when the disposition status of non-welfare patients is examined. Overall, 54.1 percent are admitted and 45.9 percent are discharged as compared with 26.1 percent of welfare patients admitted and 73.9 percent discharged. In addition, no wide monthly variations are noted for non-welfare patients.

B. Diagnoses of Ambulance Users:

As stated earlier, an evaluation of the medical need of patients using ambulances to obtain emergency department services was made by reviewing the medical records of a ten percent sample of welfare and non-welfare patients. The physician who reviewed these records had only medical information available to eliminate any possible bias regarding payment category. It was determined that this sample of patients is representative of the population at risk regarding admission status and payment category, and that the difference between welfare and non-welfare ambulance patients regarding admission to the hospital is highly statistically significant. From a medical point of view, it was seen that while the welfare ambulance patients comprised but 8.0 percent of the sample, over 60.0 percent of the ambulance use of these patients was judged to be medically unnecessary.

A review of case mix of ambulance patients in the broad categories of trauma and non-trauma revealed only slight differences between payment categories. There were more welfare ambulance users in the non-trauma category (64.9 percent) than in the trauma category (35.1 percent). A slightly higher proportion of welfare patients in the non-traumatic category appeared to be patients with less serious diagnoses than would be expected. This is revealed by the fact that while this group represents only 8.0 percent of the total population in the "minor-med" category (URI's, colds, headaches, etc.), they constitute almost 24 percent of the cases. On the other hand, the non-welfare patients appear to be evenly represented in most of the diagnostic categories, according to their proportionate representation in the total sample.

In order to assume that an ambulance patient being admitted to a hospital is seriously ill and should have used that particular form of transportation, there should be agreement between both the admission status of the patient and the medical necessity for use of the ambulance. In this study such an assumption is fairly valid. For instance, 3.1 percent of all patients with a heart complaint were not admitted to the hospital, and 3.1 percent of the patients with heart complaints were judged not to have needed an ambulance. While there is some variation, it is believed that an assumption can be made that admission status is a good indication of the *medical* necessity for the use of an ambulance. In fact, almost 97 percent of all ambulance patients admitted to the hospital needed an ambulance from a medical point of view. In addition, the findings indicate that if ambulances were used optimally (as judged medically), one could expect that almost 70 percent of all patients using ambulances would be admitted to the hospital (See Table No. 1).

C. Cost Estimate of Unnecessary Ambulance Use:

Estimating costs (not charges) of ambulance services is difficult. However, a past study revealed that the mean cost of providing a round-trip ambulance run in Connecticut by a commercial purveyor (the type of operator in New Haven) is \$34.11.[4] It is also known that the Department of Welfare reimburses ambulance operators at an average of \$28.00 per round-trip in New Haven, Connecticut, for providing services to welfare patients. Table No. 2 reveals the substantial savings that could be realized by citizens and purveyors alike if individuals were able to utilize ambulances properly from a medical point of view. To do so would seem to require at least two things: A) education, B) the availability of more than one type of emergency transportation response system.

D. Trends in Ambulance Use:

Just as the percentage of patients using emergency department services has increased at the rate of approximately 11 percent a year for the past 10 years in Group I Connecticut hospitals (the 8 largest urban hospitals),[2] a similar though somewhat larger increase, 12.9 percent, is seen in terms of patients using ambulances to reach the emergency service of one large urban Connecticut hospital over a one-year period. The largest percent increase in ambulance use is by the welfare payment category of patients. Overall, a 35.4 percent increase is noted in this category, compared to an increase of 10.4 percent by non-welfare ambulance users. In addition, a larger percent increase in admissions by welfare patients is also observed (52.6 percent). However, both groups of patients (welfare and non-welfare) comprise relatively static proportions of the total ambulance user population coming to the St. Raphael's emergency department. If the trend is between 7.6

and 9.5 percent per month, a mean of 8.5 percent, the hospital emergency department and the ambulance purveyors serving this population can predict a cumulative ambulance use increase by patients coming to this emergency department of better than 100 percent in one year.

Summary and Conclusions

This study reveals that different payment categories of patients use ambulances in distinctly different patterns. For the most part, it can be concluded that non-welfare patients using ambulances tend to require admission to the hospital (54.1 percent) compared with patients on welfare who are generally discharged (74 percent). Moreover, from a medical standpoint over 60 percent of the ambulance use of welfare patients was judged to be unnecessary in contrast to an unnecessary non-welfare use of about 26 percent. On the other hand, if ambulance use was optimal (medically necessary), it is shown that almost 70 percent of all patients using ambulances would be admitted to the hospital. At present, it is judged that of all patients using ambulances and being admitted to the hospital, the vast majority need an ambulance (96.6 percent), but of those patients discharged, only 45.4 percent require the use of an ambulance.

An estimate of the cost of unnecessary use reveals some interesting facts. Although patients in the welfare payment category tend to misuse ambulance services, because such patients comprise a small proportion of the total population using ambulances (about 10 percent), the cost implications are far less than the misuse of services by the non-welfare payment category. While the total population would benefit from optimal use of ambulance services from a strictly cost standpoint, the patients in the non-welfare payment category would benefit by far the most. Indeed, if an alternative response system such as a taxicab or other means of transportation were available, it is estimated that this group of patients would save over $30,000 per year compared to a savings for patients in the welfare payment category of just over $5,000 per year.

Cost figures alone can be misleading as misuse of ambulance services has wider ramifications than the pocketbook. Firstly, when an ambulance is in service improperly, it is unavailable for use in instances that might be lifesaving.

Secondly, when individuals arrive at emergency departments via ambulances, they are given priority treatment. Patients not requiring such treatment place extra demands on emergency department personnel, often causing long delays for others equally in need of treatment and potential inattention to those truly ill or injured. This spin-off effect is probably more costly in terms of professional time and facilities than the cost of using an ambulance vehicle. Unfortunately, as long as only a single emergency transport system exists, there appears little solution to this vexing problem. *An adequate public transportation system and a public policy which does not allow reimbursement for alternative emergency response systems to individuals unable to afford an automobile or obtain a ride to the emergency department does nothing but perpetuate ambulance misuse, misuse of tax funds, and probably increase the cost of providing necessary hospital emergency services.* However, due to their large numbers, transport misuse of the system by individuals not in the welfare payment category contributes significantly to unavailability of ambulance service for true emergencies; cost of ambulance services (the need for more vehicles and personnel, etc.); and costs (real and psychic) of hospital emergency services. Clearly, what is needed is a combination of education, alternative emergency response transport systems, and a closely monitored ambulance dispatch and communication system if the problem of ambulance misuse is to be corrected.

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3. *Non-Trauma* is represented by the following diagnostic categories: Heart, Lungs and Airways, Cerebral Vascular Accidents and other Circulatory Ailments, Abdomen, Neurological problems (convulsions, seizures, etc.), Psychiatric problems (hysteria, anxiety, drug and alcohol), Diabetes, Minor Medical Complaints (URI's, colds, headaches, etc.), Pregnancy (labor, incomplete abortions, etc.), Urinary and GYN problems.

Trauma is represented by Fractured Limbs, Fractured Head (skull, face, etc.), Fractured Hip or Pelvis, Lacerations, Burns (including smoke inhalation, heat prostration), Puncture Wounds, Soft Tissue Injuries (contusions, abrasions), Multiple Trauma.

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TABLE 1

ADMISSION STATUS AND NECESSITY FOR AMBULANCE USE BY DIAGNOSIS

Diagnostic Category	*No.*	*Percent*	*Percent Admitted*	*Percent Discharged*	*Percent Amb. Use Necessary*	*Percent Amb. Use Unnecessary*
Heart	62	13.4	23.3	3.1	17.5	3.1
Lungs — Air	41	8.9	12.7	4.9	10.3	5.3
CVA — Circl	31	6.7	10.6	2.7	8.2	3.1
Abdominal	34	7.4	8.5	6.2	6.3	9.9
Neurological	19	4.1	3.8	4.4	4.5	3.1
Psychiatric	30	6.5	3.8	9.3	5.1	9.9
Diabetes	4	0.9	0.8	0.9	1.2	0.0
Minor Med	17	3.7	0.0	7.6	0.9	10.7
Pregnancy	4	0.9	0.4	1.3	0.9	0.8
Urin-GYN	8	1.7	3.4	0.0	2.4	0.0
Fx Limb*	60	13.0	15.3	10.2	12.1	15.3
Fx Head*	22	4.8	5.1	4.4	5.1	3.8
Fx Hip-Pelvis*	19	4.1	3.8	4.4	4.8	2.3
Lacerations*	51	11.0	3.4	19.1	8.8	16.8
Burns*	5	1.1	0.4	1.8	1.2	0.8
Puncture Wound*	6	1.3	0.8	1.8	0.9	2.3
Soft Tissue Inj*	34	7.4	0.8	14.2	5.1	13.0
Multiple Trauma*	15	3.2	3.0	3.6	4.5	0.0
	462	100.0				

*Trauma

Patient Status	*Use Necessary* *No.*	*%*	*Use Not Necessary* *No.*	*%*	*Percent Total Use Necessary*
Admitted	229	68.98	8	6.10	96.6
Discharged	103	31.02	122	93.85	45.8
Totals	332	100.00	130	100.00	71.9

TABLE 2

ESTIMATED COST OF UNNECESSARY AMBULANCE USE BY PAYMENT CATEGORY PER YEAR

	Col. 1	*Col. 2*	*Col. 3*	*Col. 4*	*Col. 5*	*Col. 6*	*Col. 7*
Type of Patient	*Ambulance Use Not Necessary* *No.*	*%*	*Cost Per Trip*	*Estimated Cost * Per Year*	*Estimated Cost ** To Purveyor*	*Estimated Cost*** of Use of Taxicab*	*Estimated Savings Per Year*
Non-Welfare	111	25.9	$34.11	$37,862.10	—	$5,550.00	$32,312.10
Welfare	23	62.2	28.00	6,440.00	$1,405.30	1,150.00	5,290.00
Totals	134	28.8		$44,302.10		$6,700.00	$37,602.10

* No. patients x 10 (for a year's experience) x cost per trip = cost per year.

** No. welfare patients x 10 x 6.11 (34.11 - 28.00) = cost to purveyor.

*** No. patients x 10 x $5.00 per round trip = cost per year.

Col. 4 - Col. 6 = Estimated Savings.

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1. Gordon, E. E. and Haas, A., Indust. Med. & Surg. 28:217, May, 1959.

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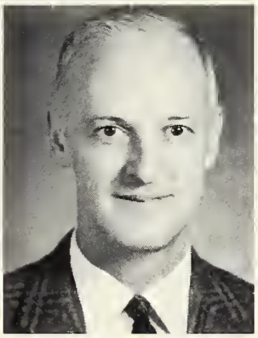

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A MESSAGE FROM THE PRESIDENT

At this 182nd Annual Meeting of the Connecticut State Medical Society there will be opportunity for every member to participate in some of the programs. As President, I urge everyone to take full advantage of this opportunity to benefit from his or her membership.

With PSROs and HMOs already facts of medical life, and with some form of national health insurance seemingly sure to be enacted in the foreseeable future, this year's meeting of the House of Delegates on April 30 should prove of special interest to all Connecticut physicians. Not only can members observe their elected representatives in action, doing their best to deal effectively with the rapidly changing legislative, economic and social issues of the day in relation to the care of patients, but also they will have a chance to express their own views on a variety of subjects of interest and concern to all practitioners as participants in the reference committee hearings held during the morning session of the House. There is but one pre-requisite for getting in on these discussions — being among those present.

The timely theme of the two-day Scientific Assembly will be "Common Medical Problems Updated." The Program Committee is to be commended for arranging the popular "learning panels" again and for the outstanding formal presentations scheduled for May 1 and 2. The importance of continuing medical education for physicians is much in the news of late and this fine opportunity to increase our knowledge should not be passed up for less than compelling reasons. For those in quest of receiving the AMA Physician's Recognition Award, we are pleased that the Yale University School of Medicine has approved this year's Assembly for Category I credit on an hour-for-hour basis.

On the evening of May 1 the Annual Dinner of the Society for all members and their guests will be held, preceded by a social hour. Featured at the dinner will be the inauguration and inaugural address of the incoming President and the presentation of certificates and pins to a distinguished group of new 50 Year Members. The dinner is always a pleasant occasion, and offers us a few hours of relaxation in which to renew old acquaintances and also to make some new ones.

I invite you to share with me the benefits and responsibilities of our membership in the Society at this 182nd Annual Meeting and I will look forward to seeing you there.

Sidney L. Cramer

GENERAL INFORMATION READ CAREFULLY

REGISTRATION

The registration desk will be located on the mezzanine floor and everyone attending the meeting is requested to register. There will be no charge for registration and all members of the Society will be given a guest luncheon ticket when and only if they register.

PARKING

There are ample parking facilities at the hotel and in the surrounding area. If you wish, you may drive up to the door of the hotel and an attendant will park your car for you.

TELEPHONE

Telephone messages will be received at Hartford 249-5611.

LUNCHEONS

Luncheons will be served in the Cities Rooms on the Mezzanine, on May 1 and May 2 and ALL MEMBERS OF THE SOCIETY REGISTERING WILL BE THE GUEST OF THE SOCIETY. PLEASE REMEMBER A LUNCHEON TICKET WILL BE GIVEN TO MEMBERS ONLY IF THEY REGISTER.

HOTEL ACCOMMODATIONS

Persons who wish to remain overnight should make reservations not later than two weeks prior to opening date of the meeting. Reservations will be held until 6:00 P.M. on the day of arrival, unless later hour is specified. Please indicate in your letter that you are attending the Connecticut State Medical Society meeting. Your letter should be directed to the Front Office Manager, Hartford Hilton Hotel, 10 Ford Street, Hartford, Connecticut.

ANNUAL DINNER

The Annual Dinner will be held at the hotel on Wednesday, May 1, 1974. The social hour will be at 6:15 P.M. and the dinner at 7:00 P.M. All persons attending the dinner will be the guests of the Society at the social hour which will begin *promptly* at 6:15 P.M. and end *promptly* at 7:00 P.M. Your reservation for dinner should be sent in as soon as possible.

PROGRAM

General scientific sessions will be held on Wednesday and Thursday in the Terrace Room and Section meetings will be held in the rooms listed in the program. Round Table Discussions will again be held on Wednesday and Thursday mornings.

EXHIBITS

All the exhibits will be located in the ballroom. Physicians should take advantage of the opportunity to review "under one roof" what is new and timely by visiting the commercial and educational exhibits.

ROUND TABLE DISCUSSIONS

Members of the Society are invited and encouraged to participate in the new learning technique; Round Table Discussions, or "Learning Panels." Four of these panels will be held on Wednesday, May 1 and four on Thursday, May 2. The subject, time and place for each is published in the program that follows. The respective "Learning Panels" will be chaired by experienced physicians who will lead their groups, of not more than 15 participants, through in-depth examination of the topics assigned. Active participation in the group discussion will be limited to members who have pre-registered. Registration forms will be mailed to members with the program of the meeting. Members, who have not pre-registered, will be welcome to attend the panels as observers only, within the limits of available seating capacity.

AMA PHYSICIAN'S RECOGNITION AWARD

THE YALE UNIVERSITY SCHOOL OF MEDICINE HAS ACCREDITED THE SCIENTIFIC PROGRAM OF THE SOCIETY'S ANNUAL MEETING FOR CATEGORY ONE CREDIT TOWARD THE AMA PHYSICIAN'S RECOGNITION AWARD. CREDIT IS GRANTED IN THIS CATEGORY ON AN HOUR-FOR-HOUR BASIS.

ANNUAL MEETING OF THE HOUSE OF DELEGATES

Tuesday, April 30

Terrace Room Mezzanine

Presiding:

KENNETH F. BRANDON, *Hartford, Speaker of the House*
TIMOTHY F. NOLAN, *Greenwich, Vice-Speaker of the House*

7:30 REGISTRATION OF DELEGATES
Continental Breakfast for Delegates and Official Guests

8:30 CALL TO ORDER
OPENING SESSION
REFERENCE COMMITTEE HEARINGS

1:15 LUNCHEON — Club Room — Fourth Floor

3:00 CALL TO ORDER — Terrace Room
FINAL SESSION

6:30 ADJOURNMENT
Reception and Dinner for Delegates and Official Guests — Cities Rooms — Mezzanine

SCIENTIFIC PROGRAMS
WEDNESDAY, MAY 1
MORNING SESSIONS

8:30 **REGISTRATION** — Mezzanine

ROUND TABLE DISCUSSIONS

8:45 - 10:00 Fourth Floor in Rooms Designated

CORONARY CARE UNIT — PITFALLS AND TRIUMPHS Room 412
Charles N. Leach, Farmington, Connecticut

PRACTICAL ASPECTS OF WORKING UP HYPERTENSIVE PATIENT — Room 416
H. Robert Silverstein, Hartford, Connecticut

CORONARY ANGIOGRAPHY — Room 420
Marshall Franklin, Darien, Connecticut

VENEREAL DISEASE — A RAGING EPIDEMIC — Room 424
Hans Neumann, New Haven, Connecticut

10:00 INTERMISSION TO VISIT EXHIBITS

TERRACE ROOM

10:25 **OPENING REMARKS**
Malcolm M. Ellison, New London, Connecticut
Chairman, CSMS Committee on Program of Scientific Assembly

SYMPOSIUM ON HYPERTENSION

10:30 **WHY TREAT HYPERTENSION?**
WILLIAM B. KANNELL, FRAMINGHAM, MASSACHUSETTS; Lecturer in Preventive Medicine, Harvard Medical School; Consultant in Medicine, Framingham Union Hospital.

11:10 **RECENT ADVANCES IN THE PATHOPHYSIOLOGY OF HYPERTENSION**
PATRICK J. MULROW, NEW HAVEN, CONNECTICUT; Professor of Medicine, Yale University School of Medicine; Attending Physician, Yale-New Haven Medical Center.

11:50 **CURRENT TREATMENT OF HYPERTENSION**
QUENTIN B. DEMING, BRONX, NEW YORK; Professor of Medicine, Director Hypertension Division, Department of Medicine, Albert Einstein College of Medicine; Attending Physician, Bronx Municipal Hospital Center.

12:30 **INTERMISSION TO VISIT EXHIBITS**

1:00 **LUNCHEON** — Cities Rooms

AFTERNOON SESSION
TERRACE ROOM

SYMPOSIUM ON CORONARY ARTERY DISEASE

(Can you Recognize Asymptomatic Coronary Artery Disease?)

2:00 **METABOLIC PRECURSORS OF CORONARY HEART DISEASE**
ROBERT S. LEES, CAMBRIDGE, MASSACHUSETTS; Professor of Cardiovascular Disease, Massachusetts Institute of Technology; Director Non-Invasive Diagnostic Laboratory, Massachusetts General Hospital.

2:40 **USE OF NEWER DIAGNOSTIC PROCEDURES IN FINDING THE PRE-CORONARY PATIENT**
LAWRENCE S. COHEN, NEW HAVEN, CONNECTICUT; Professor of Medicine, Yale University School of Medicine; Chief of Cardiology, Yale-New Haven Medical Center.

3:30 **INTERMISSION TO VISIT EXHIBITS**

MEETINGS OF SECTIONS OF THE SOCIETY AND GUEST ORGANIZATIONS

SECTION ON ALLERGY

4:30 Room 404

President: Philip I. Weisinger, New Haven
Secretary: Robert A. Lanzi, Orange

STEROID USAGE IN ALLERGY

Bruce Bower, Hartford, Connecticut.

Business Meeting to follow.

SECTION ON ANESTHESIA

3:30
Hunt Memorial Building
230 Scarborough Street, Hartford

President: Henry T. Bonney, Hartford
Secretary: John T. Conroy, West Hartford

THE SEVENTH RALPH M. TOVELL MEMORIAL LECTURE—SUBJECT TO BE ANNOUNCED

Joseph F. Artusio, Jr., New York City; Professor and Chairman, Department of Anesthesia, Cornell University Medical College.

SECTION ON DERMATOLOGY

2:30 Boston-Buffalo Rooms

President: Ronald C. Savin, New Haven
Secretary: Duane R. Anderson, Waterbury

2:30 **BUSINESS MEETING**

3:30 **A COMPOSITE OF OFFICE DERMATOLOGIC SURGERY**

Leonard A. Lewis, Miami, Florida; Past President, American Society for Dermatologic Surgery.

SECTION ON GASTROENTEROLOGY

3:30 Room 420

President: Martin H. Floch, Norwalk
Secretary: Robert M. Vogel, Orange

CLINICAL AND RESEARCH PAPERS PRESENTED BY YALE AFFILIATED GASTROENTEROLOGY PROGRAM FELLOWS.

SECTION ON INTERNAL MEDICINE

3:30 Rooms 408-412

President: Walter S. Morgan, New Haven
Secretary: Robert S. Gordon, New Haven

"A STRING OF PEARLS"—Some of the more common medical acts of omission or commission that lead to unnecessary or complicated hospital admissions.

Moderator: Ralph F. Reinfrank, Hartford, Connecticut; Director of Medicine, Hartford Hospital.

Panel: Norman Alisberg, Bristol, Connecticut; Director of Medicine, Bristol Hospital.

Gerald J. O'Brien, Stafford Springs, Connecticut, Director of Medicine, Johnson Memorial Hospital.

Marvin Garrell, Fairfield, Connecticut; Director of Medicine, St. Vincent's Hospital, Bridgeport.

George F. Thornton, Waterbury, Connecticut; Director of Medicine, Waterbury Hospital.

SECTION ON NEUROSURGERY

5:00 P.M.
Gelston House, East Haddam, Connecticut

President: David C. Cavicke, New London
Secretary: Donald W. Cooper, New London

REMINISCENCES OF CONNECTICUT NEUROSURGERY

William J. German, New Haven, Connecticut; Professor Emeritus of Neurological Surgery, Yale University School of Medicine.

SECTION ON OBSTETRICS AND GYNECOLOGY

3:30 Rooms 436-440

President: Peter A. Goodhue, Stamford
Secretary: Philip C. Dennen, Waterbury

INTRAUTERINE ENVIRONMENT AND EXTRAUTERINE ADAPTION

William E. Lattanzi, New Haven, Connecticut; Chairman, Department of Pediatrics, Hospital of St. Raphael; Associate Clinical Professor of Pediatrics, Yale University School of Medicine.

SECTION ON OTOLARYNGOLOGY

3:30
Yankee Silversmith Inn, Wallingford

President: Frederick L. Dey, New London
Secretary: Ronald J. Pimpinella, Torrington

CAUSES OF FAILURE IN TYMPANOPLASTY

James L. Sheehy, Los Angeles, California; Clinical Professor of Otologic Surgery, University of Southern California.

Dinner to follow.

SECTION ON PATHOLOGY

3:30 Room 416

President: Dwight F. Miller, Derby
Secretary: Michael Kashgarian, New Haven

THE RENAL BIOPSY: ITS USEFULNESS IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF PATIENTS WITH RENAL DISEASE

Michael Kashgarian, New Haven, Connecticut; Associate Professor of Pathology, Yale University School of Medicine.

SECTION ON PROCTOLOGY

3:30 New York Room

President: Bernard J. Kaplan, Hartford
Secretary: Sanford Savin, Bridgeport

MODERN ADVANCES IN MANAGEMENT OF HEMORRHOIDAL DISEASE AND COLO-RECTAL POLYPS.

Bernard J. Kaplan and Sanford Savin.

SECTION ON PULMONARY DISEASES

3:30 Room 424

President: Arnold B. Rilance, New Haven
Secretary: Lester J. Krasnogor, Stamford

CIRCULATORY EFFECTS OF MECHANICAL VENTILATION

Ake N. Grenvik, Pittsburgh, Pennsylvania; Associate Professor of Anesthesiology and Critical Care Medicine, University of Pittsburgh School of Medicine.

SECTION ON UROLOGY

3:30 Washington Room

President: Elwood F. Ireland, Jr., Bridgeport
Secretary: James P. Roach, Bridgeport

EXTRACORPOREAL RENAL SURGERY
Carl A. Olsson, Boston, Massachusetts; Chief, Department of Urology, Boston Veterans Administration Hospital; Associate Professor of Surgery, Boston University School of Medicine.

WOMAN'S AUXILIARY TO THE CONNECTICUT STATE MEDICAL SOCIETY

THIRTIETH ANNUAL MEETING
TUMBLEBROOK COUNTRY CLUB,
Simsbury, Connecticut

President: Mrs. Joseph C. Czarsty, Oakville
Recording Secretary: Mrs. Robert S. Gillcash, Windham Center
Corresponding Secretary: Mrs. Herbert E. Weisberg, Waterbury

10:00 Registration

10:30 Business Meeting
Memorial Services

12:00 Reception and Luncheon

1:15 GUEST SPEAKER: John Donnelly, Hartford, Connecticut; Psychiatrist-in-Chief, Institute of Living.
SUBJECT: **OCCUPATIONAL HAZARDS OF THE PHYSICIAN'S WIFE**

2:00 Induction of Officers 1974-75
Installing Officer: Mrs. Earle E. Wilkinson, First Vice-President, Woman's Auxiliary to the American Medical Association.
Response of Incoming-President: Mrs. George E. Roch, Willimantic.

WEDNESDAY, MAY 1
ANNUAL DINNER OF THE SOCIETY

HARTFORD HILTON HOTEL
10 Ford Street, Hartford

Social Hour 6:15 P.M. Dinner 7:00 P.M.

PROGRAM
Presiding: Sidney L. Cramer, Hartford

PRESENTATION OF GUESTS AND DELEGATES FROM STATE MEDICAL SOCIETIES

FIFTY YEAR MEMBERSHIP AWARDS:
William Cohen, New Haven
Marion Dallas, New Haven
Barnett Greenhouse, New Haven
Walter Louis Hogan, West Hartford
Albert Joseph Howard, New Haven
John Louis Jack, North Haven
Henry Katz, Hartford
Halford Benson Kneale, Fairfield
Alfred Kornblut, Bridgeport
Mariano Louis Riccitelli, New Haven
Maurice Timothy Root, West Hartford
Henry John Stettbacher, Cambridge, Maryland
Alfred Norton Sweet, Middletown
Robert Mitchell Taylor, East Haven

INAUGURATION OF INCOMING PRESIDENT
James Harold Root, Jr., Waterbury

PRESIDENT'S ADDRESS

DINNER MUSIC

THURSDAY, MAY 2
MORNING SESSIONS

8:30 **REGISTRATION** Mezzanine

ROUND TABLE DISCUSSIONS

8:45 - 10:00 Fourth Floor in Rooms Designated

CERVICAL LUMPS AND BUMPS IN CHILDREN Room 412
Ronald W. Cooke, Hartford, Connecticut

THINK OR SCAN — Practical Thoughts About Scanning Room 416
Gerald S. Freedman, New Haven, Connecticut

PRACTICAL USE OF NEW FUNCTION THYROID TEST Room 420
Gerard N. Burrow, New Haven, Connecticut

MODERN ANTIBIOTIC THERAPY — Room 424
George W. Lewis, Farmington, Connecticut
Richard O. Tilton, Ph.D., Hartford, Connecticut

10:00 **INTERMISSION TO VISIT EXHIBITS**

TERRACE ROOM

10:30 **FIFTY YEARS OF THYROIDOLOGY:** The preface to modern diagnosis and therapy of thyroid disease.
Sidney C. Werner, New York City; Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons; Attending Physician, Presbyterian Hospital, New York City.

11:30 **DIABETIC RETINOPATHY — A MAJOR CAUSE OF BLINDNESS**
(What is it — What do you do about it?)
Matthew D. Davis, Madison, Wisconsin; Professor of Ophthalmology, University of Wisconsin Medical School; Chairman, Department of Ophthalmology, University Hospitals.

12:30 **INTERMISSION TO VISIT EXHIBITS**

1:00 **LUNCHEON** — Cities Rooms

AFTERNOON SESSION
TERRACE ROOM

PROGRAM ARRANGED WITH CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

Presiding: Robert J. Touloukian, New Haven, Connecticut

SALVAGE OF THE DIABETIC FOOT

2:00 **MEDICAL MANAGEMENT OF THE DIABETIC FOOT**
Philip Felig, New Haven, Connecticut; Associate Professor of Medicine and Director, General Clinical Research Center, Yale University School of Medicine.

2:20 **ROLE OF THE PODIATRIST IN THE MANAGEMENT MENT OF DIABETIC FOOT PROBLEMS**
Andrew S. Anastasio, D.P.M., New Haven, Connecticut; Medical Staff, Yale-New Haven Hospital, Past President, Connecticut Podiatry Association.

2:40 **REVASCULARIZATION OF THE DIABETIC FOOT**
R. Clement Darling, Boston, Massachusetts; Assistant Clinical Professor of Surgery, Harvard Medical School; Chief of Vascular Clinic, Massachusetts General Hospital.

3:00 **DISCUSSION** — Questions and Answers

3:30 **INTERMISSION TO VISIT EXHIBITS**

MEETINGS OF SECTION OF THE SOCIETY AND GUEST ORGANIZATIONS

SECTION ON FAMILY PRACTICE

3:30 Room 424

President: Charles H. Audet, Jr., Waterbury
Secretary: Edward A. Felder, Norwalk

THE U-CONN FAMILY PRACTICE PROGRAM

ALEXANDER BERGER, SHELTON, CONNECTICUT; Director, Division Family Medicine, University of Connecticut School of Medicine.

JOHN E. DONNELLY, BETHANY, CONNECTICUT; Associate Director, Division Family Medicine, University of Connecticut School of Medicine.

SECTION ON FORENSIC MEDICINE

3:30 Rooms 436-440

President: Marcus E. Cox, Waterbury
Secretary: Joseph E. Daly, Waterbury

THE TRAFFIC ACCIDENT VICTIM AND ALLIED SUBJECTS

WERNER U. SPITZ, DETROIT, MICHIGAN; Chief Medical Examiner, Wayne County, Michigan; Associate Professor of Pathology, Wayne State University School of Medicine.

SECTION ON OPHTHALMOLOGY

3:30 Boston-Buffalo Rooms

President: Frederick D. Williams, Stamford
Secretary: Lewis A. Dalburg, Jr., New Britain

DIABETES, OCULAR PATHOGENESIS AND MANAGEMENT

MATTHEW D. DAVIS, MADISON, WISCONSIN; Professor of Ophthalmology, University of Wisconsin Medical School; Chairman, Department of Ophthalmology, University Hospitals.

SECTION ON ORTHOPEDICS

4:00

Hunt Memorial Building
230 Scarborough Street, Hartford

President: Jerome Barton, Norwalk
Secretary: Martin L. Karno, New London

COMPRESSION NAILING OF FEMORAL NECK FRACTURES

ROCCO A. CALANDRUCCIO, Campbell Clinic, Memphis, Tennessee.

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

3:30 New York-Washington Rooms

President: L. Ronald Homza, Bridgeport
Secretary: Forrest E.H. Lightbody, Greenwich

IMMEDIATE POST-OPERATIVE FITTING AND REHABILITATION OF AMPUTEES

JOHN C. ALLEN, HARTFORD, CONNECTICUT; Director of Department of Physical Medicine and Rehabilitation, Hartford Hospital.

FREDERICK E. DUGDALE, BRANFORD, CONNECTICUT; Chief of Rehabilitation Service, West Haven Veteran's Administration Hospital (Retired).

SECTION ON PSYCHIATRY

3:30 Room 412

President: James M. Trench, Hartford
Secretary: Darius G. Ornston, Jr., New Haven

WHY AND HOW TO USE A PSYCHIATRIST AND WHAT YOU SHOULD EXPECT FROM HIM

PAUL E. KAUNITZ, NEW HAVEN, CONNECTICUT; Clinical Professor of Psychiatry, Yale University School of Medicine.

PANEL ON PSYCHOPHARMACOLOGY

BENJAMIN WEISEL, HARTFORD, CONNECTICUT; Professor and Chairman, Department of Psychiatry, University of Connecticut School of Medicine.

ROBERT BYCK, NEW HAVEN, CONNECTICUT; Associate Professor of Pharmacology in Psychiatry, Yale University School of Medicine.

PETER R. MANES, NEW HAVEN, CONNECTICUT; Clinical Instructor in Psychiatry, Yale University School of Medicine.

SECTION ON RADIOLOGY

3:30 Room 408

President: Henry J. Fox, Bridgeport
Secretary: Mehdi S. Eslami, Waterbury

BUSINESS MEETING
ELECTION OF OFFICERS

SECTION ON THORACIC AND CARDIOVASCULAR SURGERY

3:30 Room 404

President: Joseph P. Shea, Bridgeport
Secretary: Allan L. Toole, New Haven

BUSINESS MEETING

CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

TERRACE ROOM

President: Stewart A. King, Stamford
Secretary: Raymond K. Bopp, Willimantic
Presiding: Robert J. Touloukian, New Haven, Connecticut

2:00 (See General Program — Thursday 2:00 P.M.)

3:30 INTERMISSION TO VISIT EXHIBITS

4:00 FEASIBILITY OF FORMATION OF SURGICAL SECTION IN CONNECTICUT STATE MEDICAL SOCIETY — **Forum — Discussion.** All Connecticut Surgeons invited.
Sponsored by: Connecticut Society of American Board Surgeons; American College of Surgeons, Connecticut Chapter.

5:00 SOCIAL HOUR

6:00 DINNER

DIABETES ASSOCIATION OF CONNECTICUT

3:30 Rooms 416-420

President: Neil Auerbach, Norwalk
Secretary: James C. Hart, Hartford

PANEL DISCUSSION: RENAL TRANSPLANTATION AND CHRONIC HEMODIALYSIS IN THE DIABETIC

Moderator: NEIL AUERBACH, NORWALK, CONNECTICUT; President, Diabetes Association of Connecticut.

Panel: MARK W. IZARD, HARTFORD, CONNECTICUT; Director, Hemodialysis Unit, Hartford Hospital.

(Continued)

Robert T. Schweizer, Hartford, Connecticut; Director, Surgical Research, Hartford Hospital.

John A. Goffinet, West Haven, Connecticut; Associate Professor of Medicine, Yale University School of Medicine; Director, Renal Dialysis Center, West Haven Veteran's Administration Hospital.

TECHNICAL EXHIBITS

Aetna Life and Casualty, Hartford, Connecticut
Burroughs Welcome and Company, Research Triangle Park, North Carolina
Coca-Cola Company, U.S.A.
Datamedic Corporation, Huntington, New York
Arthur W. Eade Insurance, New Haven, Connecticut
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Healthco-Stoughton Company, Hartford, Connecticut
Hoechst Pharmaceuticals, Inc., Somerville, New Jersey
Instrumentation for Medicine, Inc., Greenwich, Connecticut
Eli Lilly & Company, Indianapolis, Indiana
Meade Johnson Laboratories, Evansville, Indiana
Medical Personnel Pool, Hartford, Connecticut
Parke, Davis & Company, Detroit, Michigan
The Purdue Frederick Company, Norwalk, Connecticut
Respiratory Service Corporation, Darien, Connecticut
The Wildlife Gallery, Stamford, Connecticut

EDUCATIONAL EXHIBITS

Demonstration of Program of Research, Education and Service in Digestive Diseases.
  Connecticut Digestive Disease Society, Inc.

Information on Incidence and Survival from the Connecticut Tumor Registry.
  Connecticut State Department of Health
  CSMS Cancer Coordinating Committee

Prevention of Blindness in Action
  Connecticut Society for the Prevention of Blindness
  Section on Ophthalmology, Connecticut State Medical Society

High Blood Pressure — Professional Education Aspects
  Connecticut Heart Association
  Connecticut State Department of Health

Woman's Auxiliary to the Connecticut State Medical Society

Screening by Blood Tests
  Diabetes Association of Connecticut
  Connecticut State Department of Health
  Stamford Department of Health

ART EXHIBIT

Connecticut Physicians' Art Association

SPECIAL NOTICES

THE CONNECTICUT STATE MEDICAL SOCIETY
acknowledges with thanks
convention program grants received from:

Bristol Laboratories, Inc., Syracuse, New York
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A. H. Robins Company, Inc., Richmond, Virginia
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HOSPITAL RESIDENTS, INTERNS AND MEDICAL STUDENTS ARE CORDIALLY INVITED TO ATTEND THIS MEETING.

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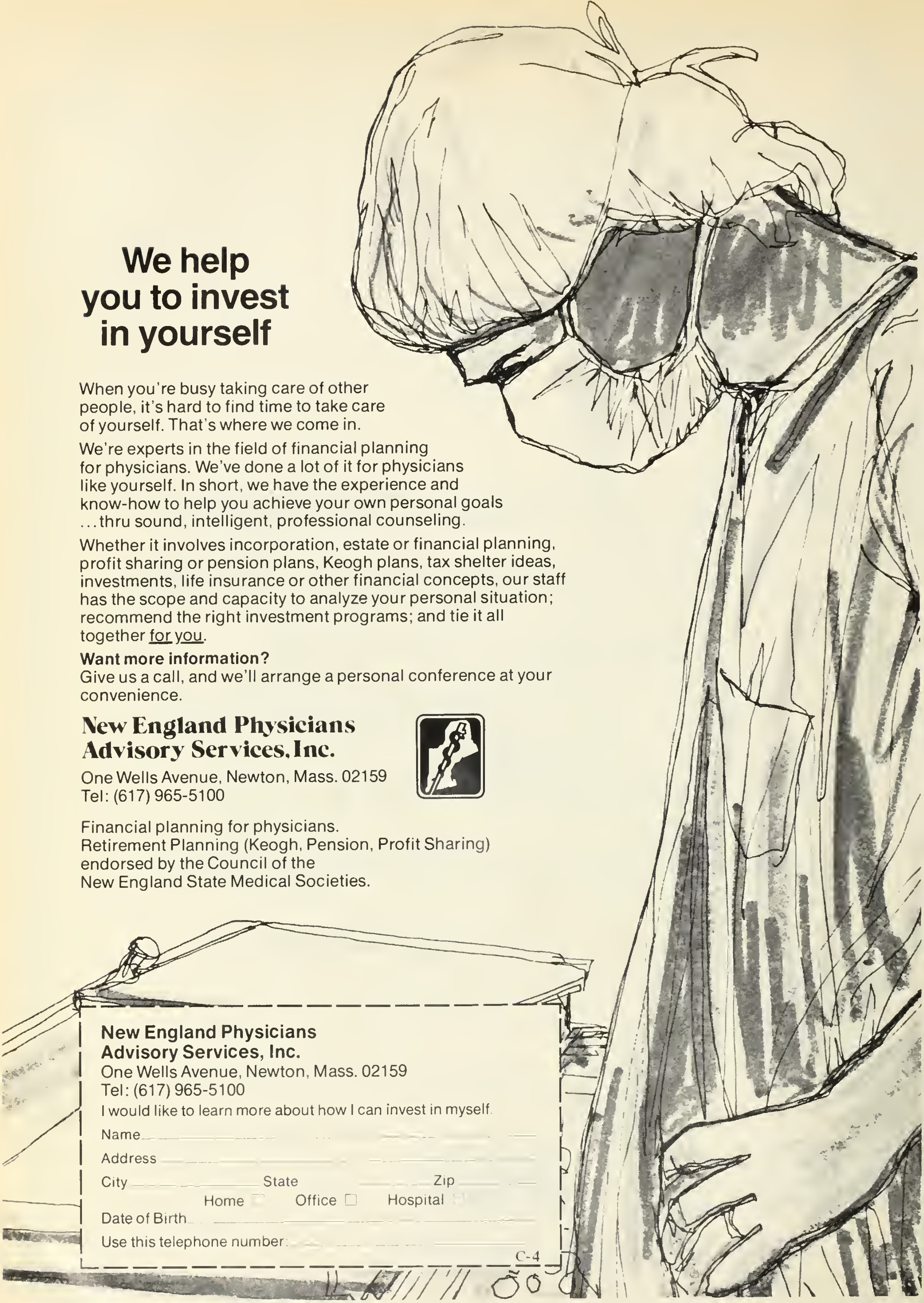

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Executive Director
Josephine P. Lindquist
Associate Executive Director

Leonard R. Tomat
Assistant Executive Director
Scientific Activities

Summary of Actions
Council Meeting
Wednesday, February 13, 1974

I. Attendance

Present in addition to the Chairman, Dr. D. A. Grendon, and the Vice Chairman, Dr. C. W. Johnson, were: Drs. Cramer, Root, Jr., VanSyckle, Spitz Brandon, Nolan, Granoff, Gardner, Fabro, Hess, Nemoitin, Ragland, Jr., James, Pelz, Krinsky, Roch, Hecklau, Kamens, Canzonetti, Rubinow, Harkins, Magram, Freedman, Mendillo, Barrett and Klare.

Also present were: Mrs. Lindquist, Mr. Tomat, Mr. Sweeney, Mr. Martell (FCMA) and Dr. Richards.

Absent were: Drs. Backhus, Bradley, Dambeck and Hastings.

II. Routine Business

Approval of Minutes

As published and distributed, it was VOTED to approve the minutes of the meeting of January 17, 1974.

Life Memberships

It was VOTED to approve applications for Life Membership received from eligible Active Members as follows:

Clifton W. Anderson, 153 Mason Street, Greenwich
Morton Arnold, 29 North Street, Willimantic
Jules V. Coleman, 135 Whitney Avenue, New Haven
George M. Connors, 964 South Main Street, Plainville
Rudolph A. Damiani, Rose Hill, Wolcott
Matthew Griswold, P.O. Box 206, Old Lyme
Jerome A. L'Heureux, 405 Broad Street, Meriden
Martin P. McCue, 473 Boston Post Road, Waterford

Resignations, Appointments, Etc.

(a) *Committee on Peer Review Systems:* It was VOTED to appoint David L. Warren, Manchester, to membership on the Committee.

(b) *Nomination, Board of Directors, American Board of Family Practice:* It was VOTED to recommend Isadore H. Friedberg, Newington, for consideration by the AMA Board of Trustees as a Nominee as a Director of the American Board of Family Practice representing the AMA Section Council on Family and General Practice. The CSMS Section on Family Practice has also been invited to recommend such a nominee to the AMA Board of Trustees.

(c) *Delegate to Medical Society of New Jersey:* It was VOTED to accept with regret the resignation of E. Tremain Bradley, Norwalk, as one of the two CSMS delegates to MSNJ. It was further VOTED to appoint Morris A Granoff, New Haven, to replace Dr. Bradley as co-delegate for the balance of the current term, 7/1/73-6/30/74. Clifford E. Wilson, Norwich, is the other delegate.

Date of Next Meeting

The Chairman scheduled the next meeting of the Council for Thursday, March 21, 1974.

III. Old, New and Special Business

Report — Committee to Study Perinatal Morbidity and Mortality

It was VOTED to accept for filing a report of the Committee on the subject of professional surveillance of hospital nurseries. It was further VOTED to approve, with minor amendment, a statement on this subject which was recommended by the Committee. The statement follows (amendment in italics): "At no time should babies in a nursery be left without visual and auditory surveillance by a *qualified* member of the nursery staff." Notice of this action will be made to the Maternal and Child Health Section of the State Department of Health and to the Chief of Pediatrics and the administrator of each hospital caring for newborns in the state.

Presentation of 1974 Grants for CSMS Financial Aid Fund for Students

Checks in the amount of $4,000 each were presented by Chairman Grendon to Dr. Robert U. Massey, Dean of the University of Connecticut Medical School, and Dr. Robert W. Berliner, Dean of the Yale University School of Medicine. The checks represented the 1974 grants to the two schools in support of the CSMS Financial Aid Fund for Medical

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Students which was initiated by the House of Delegates in 1971. Each school has now received a total of $10,000 in Fund grants to date. Drs. Massey and Berlinger expressed thanks to the Society for establishing and giving continuing support to the Fund and reported that a substantial number of medical students at both institutions had benefited greatly since its inception. Others present for the occasion were: Dr. Fleeson, Associate Dean at UConn, and Mr. Kaplan, Assistant to the Dean at Yale.

Report — Committee on National Legislation

It was VOTED to accept for filing a report of the Committee concerning the Long-Ribicoff Bill which would provide for universal major medical (catastrophic) coverage if enacted. It was further VOTED to inform Senator Ribicoff, by letter, that the Society is interested in the measure and to request a meeting with him to discuss the measure in detail. The chairman of the Committee, Leonard Flom, Fairfield, and several Committee members of his choosing will be asked to represent the Society if such discussion with the Senator is arranged.

Reports re Medical Students, Interns and Residents

(a) *Committee on Cooperation with the Medical Schools of Connecticut:* It was VOTED to accept for filing a report of the Committee on the subject of recruiting medical students at the Yale and UConn schools for Student Membership in the Society, and it was further VOTED to approve for implementation a series of suggestions for promoting such Student Membership which the Committee offered in its report.

(b) *Committee on Continuing Medical Education:* It was VOTED to accept for filing a report of the Committee on the subject of recruiting interns and residents serving in Connecticut hospitals for Student Membership in the Society and it was further VOTED to approve for implementation a series of suggestions for promoting such membership in the Society which the Committee offered in its report.

In brief, both reports advocated identification of and communication with eligible medical students, interns and residents, the mailing of informational materials about the Society and opportunities for participation in its work, invitations to educational functions, distribution of newsletters and other publications, etc.

Connecticut Quality of Life Conference

Dr. Estelle Siker, Hartford, joined the Council to explain further the purposes, format, program, etc. being planned for this Conference which is to be held in April, 1974. Dr. Siker is a member of a multidiscipline steering committee that is engaged in the planning. After hearing Dr. Siker's presentation, and after VOTING to accept a subject progress report submitted by Mr. Sweeney of CSMS Staff, it was further VOTED to approve co-sponsorship of the Conference by the Society and to contribute $200 in funds and up to $200 of mailing service (of programs furnished by the Conference) in support of the 1974 Connecticut Quality of Life Conference.

Report — Committee on Peer Review Systems

It was VOTED to accept for filing a report submitted by the Committee which, with a series of four appendixes, recapitulated the Committee's study of the feasibility of establishing a "Connecticut Institute of Medicine," outlined the structure and functions of such an Institute, described the *modus operandi* by which it could be brought to the point of being able to become operational, stipulated the professional assistance that would be required to develop the Institute to operating potential, listed some of the agencies (insurance companies, prepayments plans, PSROs, etc.) which would be likely purchasers of the Institute's services as a "technical and professional resource center," furnished cost estimates for Institute development submitted by American Health Systems, Inc., and concluded with a recommendation "that the Council arrange for funding the Committee's efforts to establish the Connecticut Medical Institute, retaining toward this end the services of American Health Systems so as to achieve the TPRC (technical and professional resource center) status in the manner described in the Committee's report."

After lengthy discussion and the introduction and withdrawal of numerous motions, it was VOTED to approve a motion as follows:

IT IS MOVED: That the Council recommend to the House of Delegates that authorization be granted for the expenditure of approximately $30,000 by the Society to establish a "Connecticut Institute of Medicine" as advocated by the Committee on Peer Review Systems in its report to the Council of 2/13/74; and it is further

MOVED: That the Council direct the Speaker of the House of Delegates to call a special meeting of the House at the earliest possible time to consider and act upon this recommendation of the Council; and it is further

MOVED: That the Council direct that informational materials concerning the proposed "Connecticut Institute of Medicine" be mailed directly to all members of the Society as promptly as possible and urge the component County Medical Associations to hold membership meetings

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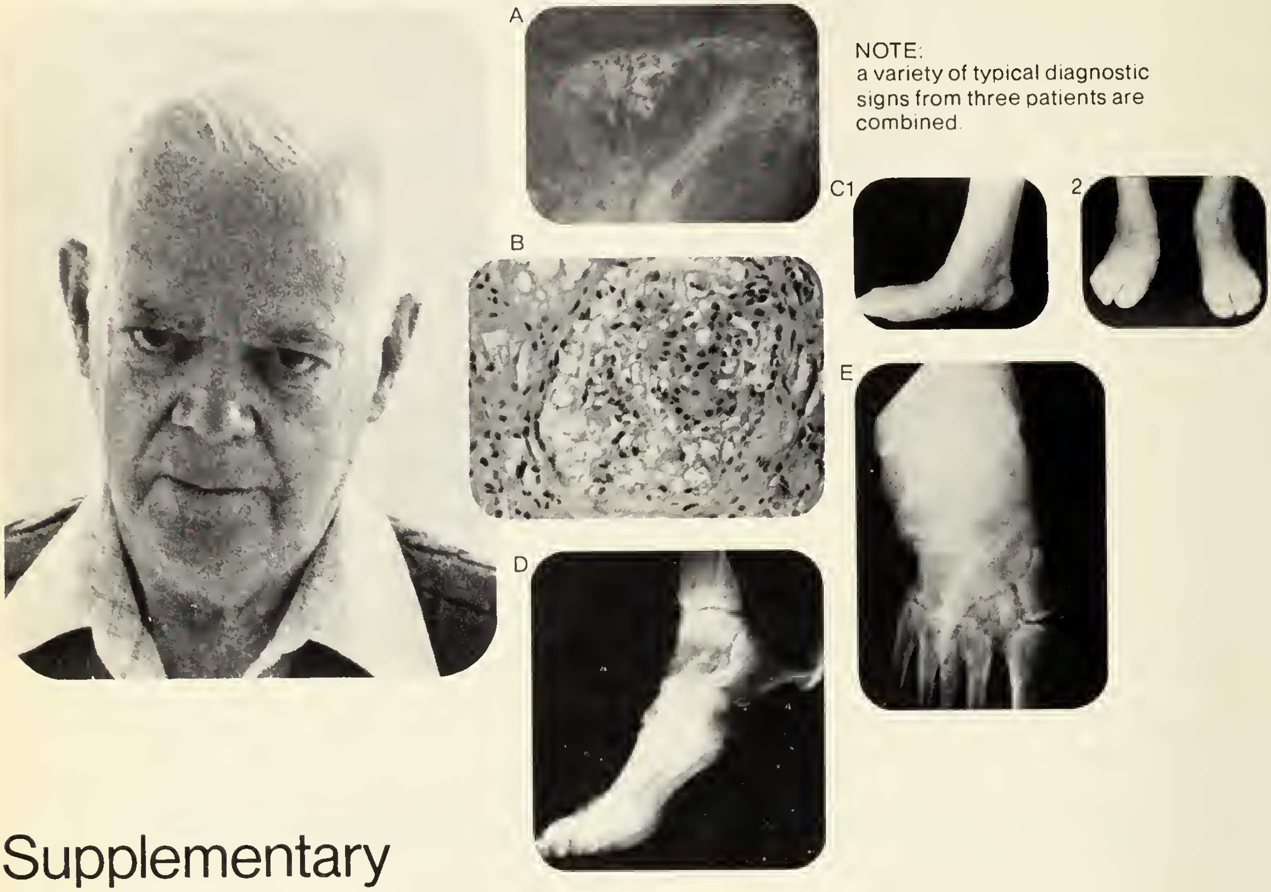

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(Continued from page 211)

prior to the special meeting of the House of Delegates for the purpose of discussing the proposal and of providing opportunity for the members to gain knowledge of the Institute's proposed structure and functions.

It was agreed that James D. Kenney, chairman of the Committee on Peer Review Systems will prepare the informational materials to be mailed to all members of the Society; that the special meeting of the House of Delegates will be held on Thursday, March 14, 1974, starting at 2:00 p.m.; and that Staff will make arrangements for suitable premises for the meeting.

N.B.: *The foregoing is a summary of the proceedings and actions of the Council on February 13, 1974. Detailed minutes of the meeting are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.*

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Quality of Life for Connecticut Children

At the American Medical Association's 1972 National Congress on the Quality of Life, Martin Marty, Professor at the University of Chicago, questioned "whether our culture will be given the luxury of clinging to simply inherited patterns much longer." He said that our public is in a "shopping mood for values" but that this new value structure needs to be fashioned by someone and preferably by gifted leaders of society, writers, educators, jurists, parents, and teachers. Clark Vincent, Professor at the Bowman Gray School of Medicine, predicted that the free swinging, liberal 14 to 24-year-olds of today will usher in a newly restrictive era in the 1980's, politically conservative, authoritarian as parents, and isolationist. Broadhus Butler, President of Dillard University, observed that, even as the percentage of college-educated people continues to rise, the rate of personal and family deterioration continues to rise as well and this deterioration is particularly marked among the educated and affluent. He said, "There is not just a need for education but there must be developed an equal concern for the uses to which education is put and how those uses are related to the quality of life."

More than 1,000 people attended this conference supported by 57 public and private agencies where 60 experts in medicine, law, theology, education, sociology, and government convened to develop a prevention oriented program. Participants concentrated on the early years of life. The American Medical Association will sponsor THE QUALITY OF LIFE DURING THE LATER YEARS in Chicago, April 1-3, 1974.

In Connecticut the AMA Auxiliary is taking a leading role in the planning of QUALITY OF LIFE FOR CONNECTICUT CHILDREN, a conference on Saturday, April 27 at the Health Center at the University of Connecticut School of Medicine in Farmington. Planning committee members represent the Connecticut State Departments of Health, Mental Health, Children and Youth Services, Child and Family Services, Connecticut Education Association, State Grange, National Council of Jewish Women, Easter Seal Society, Red Cross, Heart Association, Cancer Society, Cystic Fibrosis Association, National Conference of Christians and Jews, Association of Social Workers, Urban League, Service Bureau for Connecticut Organizations, Speech and Hearing Association, Association for Retarded Children, Dairy and Food Council, Advisory School Health Council, State Library, Federation of Women's Clubs, Council of Parents-Teachers, State Legislature Judiciary Committee, Junior League, Elementary School Principals' Association, University Health Center, Connecticut Hospital Association, League of Women Voters, Connecticut Bar Association, Connecticut State Medical Society, representatives from area colleges, White House Conferences, and A.M.A. Conferences.

Keynote speaker will be Effie O. Ellis, M.D., Special Assistant to the Executive Vice-President, American Medical Association.

It is hoped that gifted leaders of the Connecticut State Medical Society will join other professionals at the QUALITY OF LIFE FOR CONNECTICUT CHILDREN conference to discuss with Connecticut families their problems. Not everyone can be expected to agree if and how to restructure society but no one could reasonably doubt that cooperating organizations and individuals deserve praise for supporting a public forum for such a discussion.

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The Connecticut State Medical Society maintains a placement service for the convenience of Connecticut physicians, hospitals and or communities in search of candidates for positions available in our state. A description of such opportunities should be forwarded to the Physician Placement Service, 160 St. Ronan Street, New Haven, Connecticut 06511. (203-865-0587).

Physicians wishing to locate in Connecticut are invited to submit a resume to be kept on file with the Physician Placement Service. Candidates are requested to inform the Society when they are no longer available for consideration for opportunities which might be available in Connecticut.

Journal announcements under "Placement Wanted" or "Placement Opportunities" will now be processed as classified advertisements. Anyone wishing to place such an announcement must submit copy by the first of the month, two months before the month of issue.

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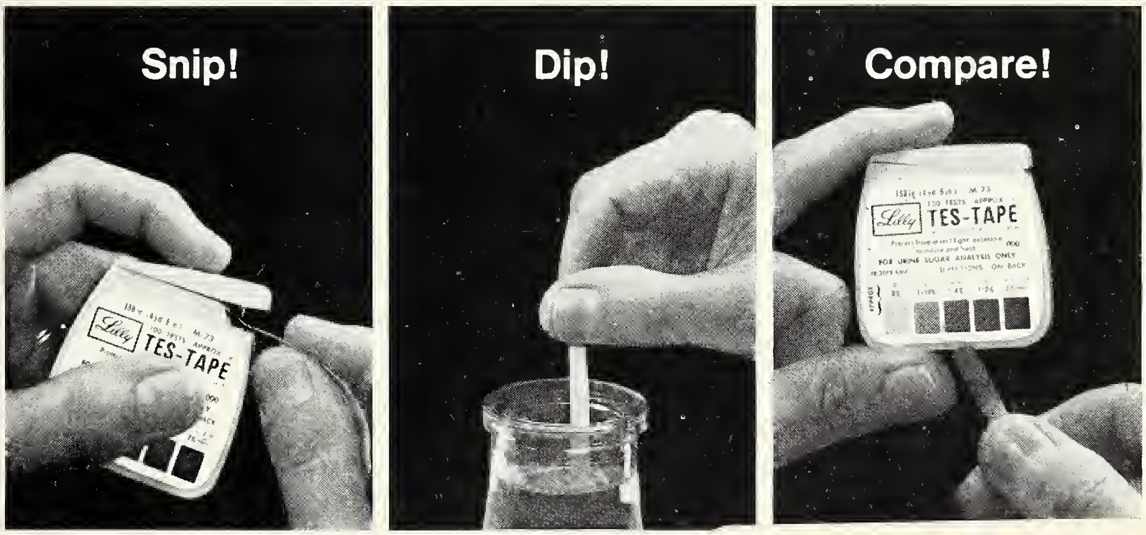

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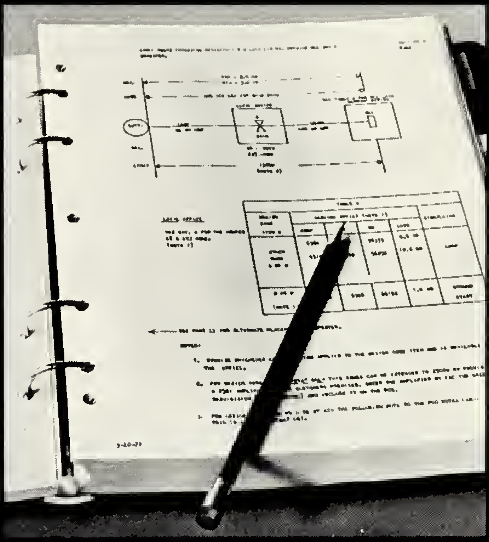

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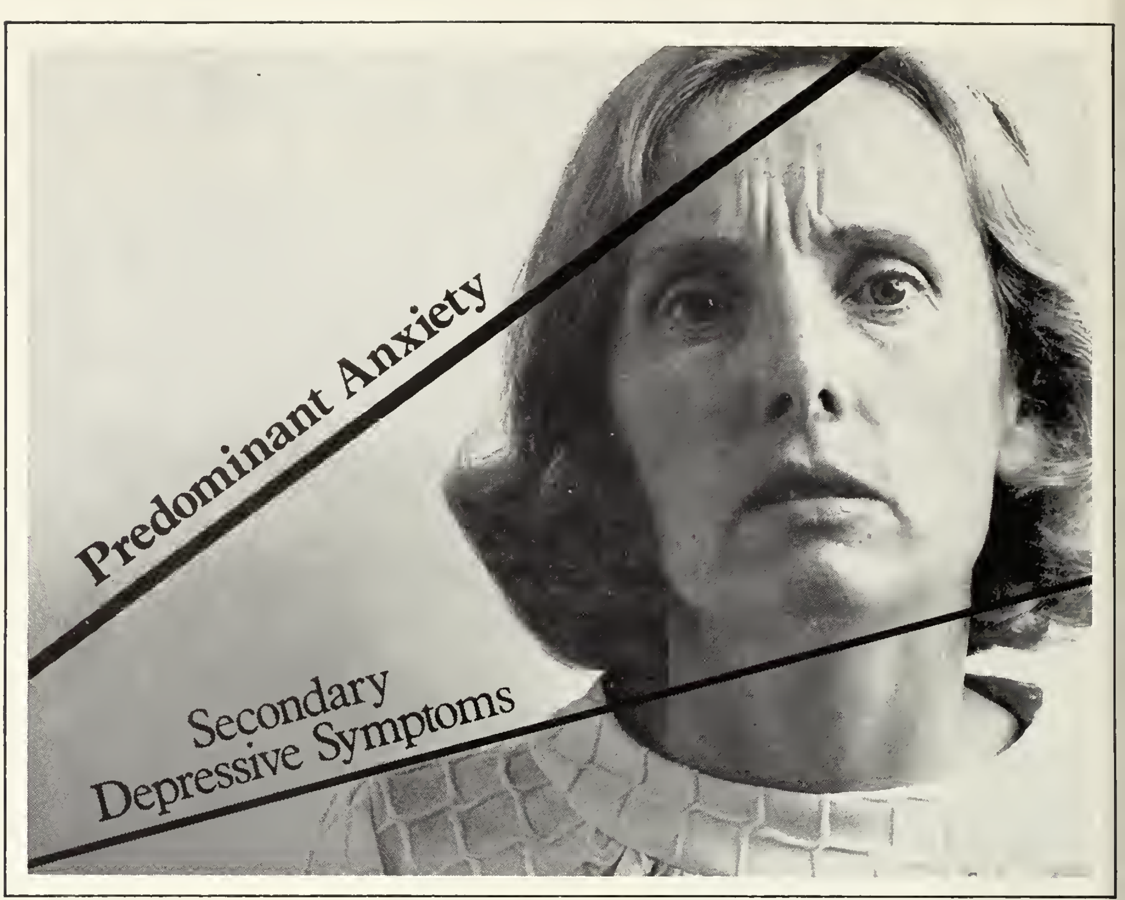

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Analysis of the Utilization Patterns and Efficiency of Lung Scans

Richard P. Spencer, M.D. and Julian Banerji

Abstract — An analysis of 200 consecutive lung scans revealed that the ages of the patients were normally distributed. This suggests that pulmonary emboli were clinically suspected in individuals of all age groups, but especially in those in the middle years. The preponderance of patients referred were females (65%). The incidence of positives reported was relatively constant in each age group from 20 to 69 years of age (38%), but rose in still older individuals. Males referred from the emergency room had a particularly high incidence of positives. A discussion of potential extensions of this study is given.

The usefulness of lung scans in evaluating patients for the presence of pulmonary emboli is well established. However, the efficiency of the procedure in a typical hospital setting (in terms of the number of positives reported), and the composition of the population studied, have been less well documented. Hence we have examined 200 consecutive patients referred for lung scans.

Materials and Methods

Consecutive lung scans performed in the Section of Nuclear Medicine were analyzed until 200 cases had been accumulated (the starting date was March 1, 1972). The only cases excluded were follow-up scans on individuals who were referred in for evaluation of the progress of previously demonstrated pulmonary defects, and lung scans performed for reasons other than suspected emboli (for example, subphrenic abscesses). Rectilinear scans of gamma camera scintiphotos were performed after intravenous administration of 250 microcuries of ^{131}I-macroaggregated albumin. Each lung scan was compared with a chest radiograph before an interpretation was given.

The age, sex, and site of origin of each patient was noted. By origin here we mean the place from which the patient came for the scan. There were 4 sites of origin: NH (New Haven Unit, the University side of the Hospital), MU (Memorial Unit, patients admitted by private physicians), POP (private outpatients) and ER (emergency room).

Results

The ages of the 200 patients were approximately normally distributed (Figure 1). There were 130 females (65%) and 70 males (35%). The median age for each sex fell in the 51-59 year range.

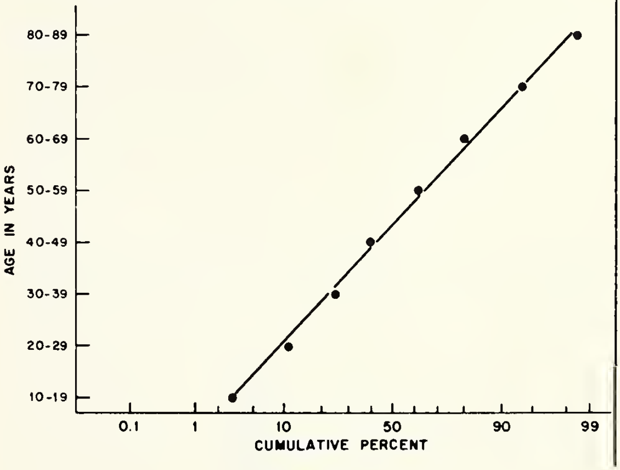

Figure 1

Cumulative age distribution of the patients. The age is shown as a function of the cumulative percent on a probability plot.

Forty-one percent of the lung scans were interpreted as being positive for pulmonary emboli. This value was the same in both sexes. The percent positive, as a function of age, is shown in Figure 2. For patients under age 20, 17% of the scans were positive. In the age groups 20 to 69 years, there were about 38% positive scans. In older patients, the number of positives was considerably higher.

The New Haven unit of the Hospital referred 75 lung scans out of about 4,000 admissions during the study period. The Memorial Unit (private admissions) had a 50% higher admission rate, with about the same number of referrals (Figure 3).

The percent of positive scans, for each sex, is shown in Figure 4 as a function of the site of origin. Of particular interest is the high percent of males from the emergency room who had a positive scan.

DR. RICHARD P. SPENCER, Professor of Nuclear Medicine (Diagnostic Radiology), Yale University School of Medicine; Director of Nuclear Medicine, Yale-New Haven Hospital.

JULIAN BANERJI, Research Technician, Yale University School of Medicine.

Supported by USPHS HE 14179 and CA 14969.

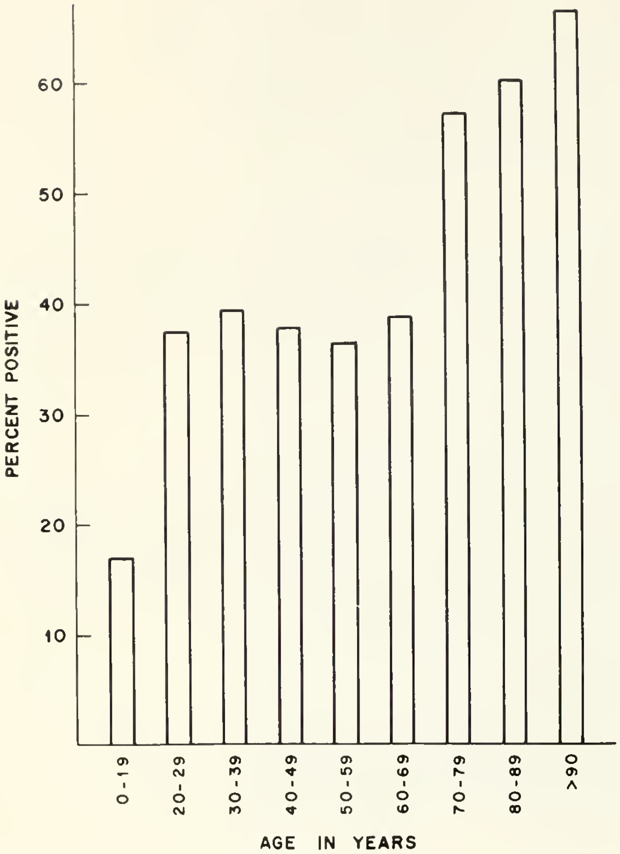

Figure 2

The percent of positive lung scans (both sexes) plotted as a function of age.

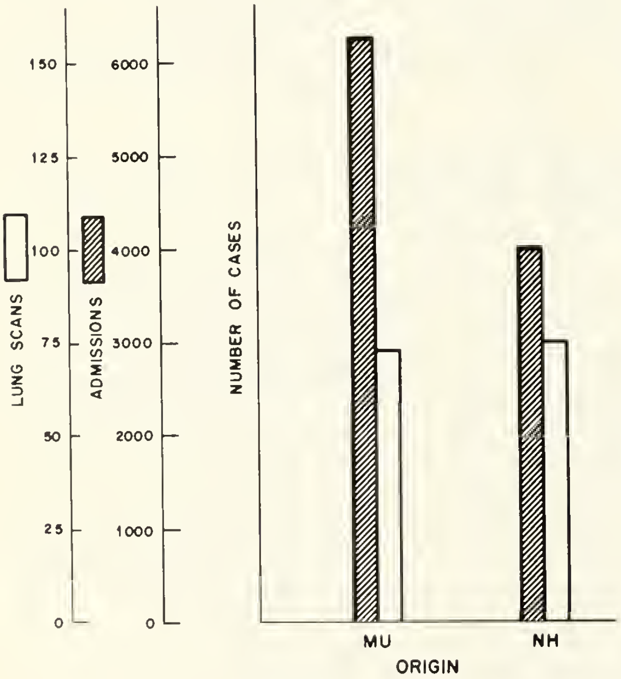

Figure 3

Number of lung scans plotted alongside total admissions during the same period of time.

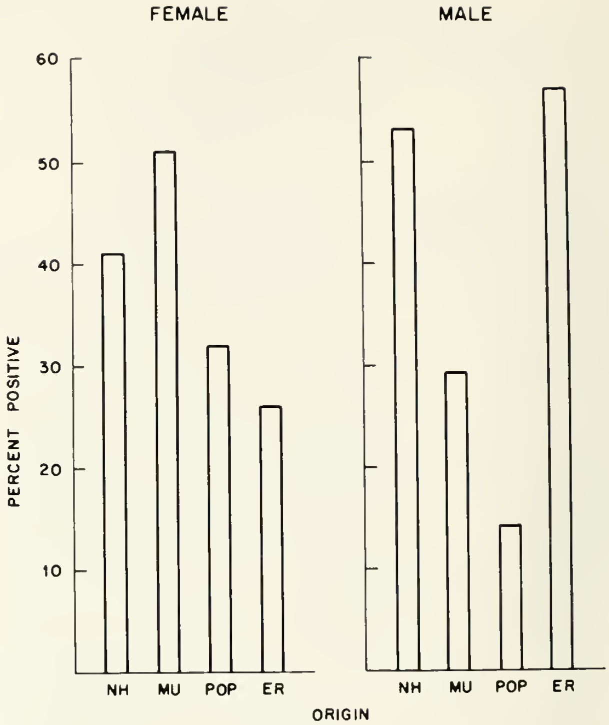

Figure 4

A plot of the percent of the scans read as positive, as a function of the site of origin of the patients.

Discussion

The normal distribution of the ages of these patients means that pulmonary emboli are clinically suspected in individuals of all age groups, but especially in those in the middle years. The higher percentage of females referred (approximately 2 to 1) may be related to the heightened suspicion of emboli in women on birth control pills. Of particular interest was the relative constancy of the number of positive scans reported (at about 38%) in the age groups 20 to 69 years of age. In those of still older ages, the incidence of positives was much greater.

There was a significantly higher number of referrals for lung scans per unit number of admissions from the University side of the medical center than from the private side. Very striking was the high incidence of positive studies in males referred from the emergency room. This is consistent with the observation of Hoffer and co-workers (1972) that having lung scans available on a 24 hour, 7 day a week basis, can be a valuable contribution.

Similar analyses on the site of origin of patients, and the number of scans reported as positive, should be extended to other procedures in Nuclear Medicine. The analyses could be of value in identifying the individuals most likely to be referred, and whether the study was being utilized with the proper frequency. The assumption would be that if very few positives were reported (and the studies were technically correct), then the study was being over ordered. Similarly, a very high incidence of positives would suggest that the procedure was not being used widely enough and that some individuals who needed the procedure were not getting it.

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Hernia and Scrotal Problems in Childhood

George T. Klauber, M.D., B.S., F.R.C.S. (C)

Inguinal Hernia

Inguinal hernia repair is the most common type of surgery to be performed in children by general surgeons. It presents most frequently in the first year of life and is eight times more common in males than in females. Laterality occurs in a 4:2:1 ratio of right side to left to bilaterality. Approximately one in four inguinal herniae present with incarceration.

An inguinal hernia is recognized as a bulge in the groin and is easily recognized by parents or physician. Most are reducible. Frequently, the hernia cannot be demonstrated on examination and a good history must be relied upon.

It may be difficult to differentiate between inguinal hernia and hydrocele, which often co-exist. However, a hydrocele is more likely to be nontender, nonreducible, transilluminable and asymptomatic. The scrotum should always be checked for absent or undescended testicle. The testicle is also easily recognized.

Surgery on an elective basis is indicated as soon as the diagnosis is made. Use of trusses and other delaying tactics is not advised.

Attempts to reduce an incarcerated hernia must be a prima facia consideration. Delay in reduction can result in testicular infarction and, if untreated, in death from gangrene or intestinal obstruction. Reduction can usually be effected by administering demerol or morphine and placing the child in a crib with the foot end elevated. This regime may have to be followed by gentle manual reduction. Only occasionally will immediate surgical intervention be necessary in the case of irreducible hernia. Following reduction, surgery can be delayed for forty-eight hours to allow edema to subside.

Bilateral hernia repair is still controversial. The incidence of bilaterality following unilateral hernia repair appears to be variable, although less than the over fifty per cent of normal babies who have a patent processus vaginalis. Therefore, prognosis is difficult as to which child will develop a contralateral hernia in the presence of a patent processus vaginalis, or thickening. In the hands of the average surgeon, the morbidity and the chance of benefiting only one in four children may be questioned.[1]

Herniorrhaphy with reconstruction of the inguinal canal is not indicated in small children. Ligation and division of the hernial sac at the level of the internal ring, simple herniotomy, will suffice. In infants the repair can be effected without even dividing the external ring. Particular care must be taken in girls because many of these herniae are sliding in nature. The broad ligament or a vascular pedicle sometimes makes up part of the wall of the sac.[2] Distal ligation to the sliding portion, excision of the excess sac, pushing back the stump and transversus facia with interrupted sutures will take care of this problem.

Complications often result from incomplete ligation of the sac. Damage to the arterial supply of the testis and vas deferens may occur. Special care should be directed toward the proper placement of the ipsilateral testis in the base of the scrotum at the end of the procedure. Replacement of an inguinal hernia with an undescended testis is an all too common error, yet easily preventable.

Hydroceles

Childhood hydroceles, almost invariably communicating in type, are caused by continued patency of the processus vaginalis, allowing peritoneal fluid to enter and accumulate in the tunica vaginalis. Hydroceles occur in infancy and early childhood and present as cystic transilluminable scrotal swellings. The right side is more commonly affected than the left and the lesion is often bilateral. The swelling is often present in the ambulant child, decreasing in size with recumbency. Spontaneous correction is the usual course. Unless symptoms are present, surgical

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DR. GEORGE T. KLAUBER, Assistant Professor of Surgery (Urology), University of Connecticut Medical Center, Farmington, Conn. and Staff Urologist, Newington Children's Hospital, Newington, Conn.

intervention is not indicated before one year of age, or within three months of appearance of swelling.

Surgical repair depends upon locating the communicating tract at the level of the superficial inguinal ring. The communicating tract is then dissected, freed from cord structures, ligated and divided where it joins the peritonium. The hydrocele is drained by aspiration or by incision of the tunica. Incision of the external oblique and complete removal of the hydrocele sac are unnecessary.

Hydroceles of the spermatic cord are similar to those of the tunica vaginalis. In view of spontaneous obliteration, a considerable period of observation is indicated before surgery is performed.

Undescended Testis

There are two varieties of undescended testis, the first being ectopic (those not in the normal line of descent of the testicle) and the other being the incompletely descended testicle.

Recent studies demonstrate that a testis not normally and completely descended by the age of nine months will not descend completely and spontaneously. The false premise that many testicles undescended in early childhood will descend later was due to a lack of understanding with regard to cremasteric reflex.

Cremasteric reflex, presumably a protective reflex, causes the phenomenon of testicular retraction. At birth, the cremasteric reflex is absent or extremely weak; at three months of age it is defiinitely present. The testis already may be difficult to locate by eighteen months of age as a result of retraction by the cremasteric muscle. Testicular retraction is maximal between five and six years of age. Thereafter, the cremasteric activity gradually vanishes until two years prior to puberty, when this action ceases. Retraction may be so pronounced that the testis appears to remain in the groin for weeks, months, or even years, only to descend under general anesthesia.

It should be noted that the testis situated abnormally high will be smaller than normal. The higher a testis, the more likely it is to be influenced by the phenomenon of retraction. After the first year of life, the suprapubic fat pads may make it impossible to palpate the small, soft retracted testis. The most common site for the ectopic undescended testis is the superficial inguinal pouch, in which it is usually easily palpable and often nearly normal in size.

The age of twelve months should be considered as a cutoff date for deciding in most cases whether surgical correction of the undescended testis is required. In the older child, not previously examined, difficulties may arise, in which case chorionic gonadotropin may be used as a diagnostic aid.

Surgical correction should be completed before six years of age, although it can be performed much earlier. For instance, when an undescended testicle and hernia co-exist, there should be no delay.

Early surgery for undescended testicle is indicated for the following reasons:

1. The overall incidence of subsequent malignant change is not increased when orchidopexy is performed before the age of six years.
2. Otherwise the incidence of malignant change associated with undescended testis is increased thirty to fifty times.
3. Histological studies suggest that the undescended testis never develops normally when surgery is performed later than six years of age.

The basic techniques of orchidopexy are well known; however, care should be taken to permit fixation of the testis to the base of the scrotum without undue tension. Hernial sacs, when present, must be completely removed. Stretching the scrotum digitally from within prevents dartos contraction during the early postoperative period. This is aided by complete division of the cremasteric muscle. The Torek procedure and others placing the testicle under tension are to be avoided. Orchidectomy should certainly be considered in the adolescent with a small unilateral undescended testis. Naturally, this must be discussed with the parents prior to surgery.

Chorionic gonadotropin may be useful as a diagnostic tool or in the treatment of bilateral impalpable testes in order to increase testicular size and cord length. Otherwise, it may damage the seminiferous tubules. Chorionic gonadotropin cannot obliterate a hernial sac, usually associated with undescended testes.

Surgical correction of the undescended testis should not be postponed until puberty. The normal development of testicular elements demands that an undescended testis be brought down before the age of six years.[3]

Testicular Torsion

Supravaginal torsion of the testis is common during infancy. Intravaginal torsion occurring primarily in adolescents is far more common. The tunica vaginalis itself is often abnormal; this, together with an abnormal insertion of the vascular pedicle, permits torsion.

Classically, torsion produces excruciating pain, sudden in onset, and is followed by testicular swelling and tenderness. The testicle is usually pulled up high into the scrotum. Absence of fever, suddenness of onset, and lack of urinary symptoms and findings help to differentiate torsion from acute epididymo-orchitis. Because epididymo-orchitis is very uncommon in childhood, the diagnosis usually should be established after surgical exploration.

Surgical exposure in adolescents should be accomplished through the scrotum. When torsion is present, the testicle should be untwisted and pexed; the other testicle should be pexed simultaneously. Orchidectomy should be avoided, if possible, because even an apparently nonviable testis may remain hormonally active. No harm will ensue if the diagnosis is subsequently that of actue epididymo-orchitis.

Neonatal testicular infarction may present as a testicular torsion. Inguinal hernia is invariably the cause. For this reason, suspected testicular torsion during the neonatal period should be explored by means of a groin incision.

Torsion of the testicular or epididymal appendages is not uncommon. The etiology is unclear. However, diagnosis is often easy when encountered shortly after onset. A tender swelling the size of a pea, occasionally bluish in color, may be seen. Surgical exploration is advised.

Umbilical Hernia

An umbilical hernia results from incomplete closure of the umbilical ring facia, thus permitting protrusion of intra-abdominal organs. Umbilical herniae are very common in premature infants and much more so in black infants. Strapping umbilical herniae has proved to be of no use, for the skin easily becomes excoriated and the hernia does not remain reduced.

Most herniae disappear by the age of two years in white children; in Blacks, spontaneous closure can still occur up to eight years of age. When a protrusion measuring 1.5 centimeter or larger, with facial defect, is present beyond the age of two to three years, surgical repair is warranted.[4]

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Medical Management of Advanced Prostatic Carcinoma with Stilphostrol

John W. Lee, M.D.

ABSTRACT — This is a review of 49 patients treated for advanced prostatic carcinoma over a period of ten years. It shows what can be done for patients with incurable disease, using an estrogen which is not new but which we feel has not been adequately appreciated in this country.

Rectal discomfort and perineal itching during intravenous Stilphostrol therapy, is a good indication that symptomatic clinical response can be expected if the patient is subsequently continued on oral medication.

With intermittent intravenous Stilphostrol followed by oral maintenance adjusted individually, the patient can be kept symptom-free and surgery-avoided, with rare exceptions.

Estrogen therapy of carcinoma of the prostate, utilizing ST-52 ASTA,[1] was introduced in Germany in 1946. Injected in high dosage, ST-52, a "transport preparation," became effective in the presence of highly active acid phosphatase through the splitting-off of the phosphate. It was obvious to the original researchers, that the effectiveness of a new chemotherapeutic drug must be demonstrated not by use in previously untreated patients with carcinoma of the prostate, who are almost always rapidly and favorably influenced by estrogens, but by its effectiveness in patients who have developed resistance to the usual estrogens.

It was not observed in the initial use of ST-52 ASTA, that unpleasant sensations developed during intravenous injection in almost all patients, especially in the anal region. This has been observed in our patients, and has almost been diagnostic of carcin-

DR. JOHN W. LEE, Chief of Urology, State of Connecticut Veterans Home and Hospital, Rocky Hill, Conn.

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[1] Diethylstilbestrol Diphosphate

oma of the prostate. It has taken the form of rectal discomfort and perineal itching. In no case has it been so severe as to discontinue the medication. It has also been observed during injection, that there was pain or discomfort wherever metastases existed. In contrast to the German publication of August 13, 1954,[2] we have not observed difficulties with coagulation disorders. No variation of blood count or hemoglobin values has been noted.

As was the experience of Budniok and associates in Germany,[3] the dosage of ST-52 ASTA, hereafter referred to as Stilphostrol, should not be selected mechanically but should be adjusted to the needs of the individual.

As stated by Druckrey and Raabe in 1952,[4] the effects of estrogens on carcinoma of the prostate can occur in two ways. They may be indirect by altering the function of the anterior lobe of the pituitary gland, which may be the effect of p-hydroxypropiophenone, or by direct action upon the cells of the prostatic carcinoma. If the effects are direct, then the efficiency of the drug administered is a function of its concentration at the site of action. To concentrate the drug at the site of action, good solubility in water is necessary. The prostatic acid esters of the estrogens are particularly soluble in water.

Prostatic carcinoma elaborates enormous quantities of acid phosphatase with a pH usually between 4.8 and 5.4. If the estrogen is introduced in a "masked" form by intravenous infusion, it is possible to achieve a high dosage at the site of action. Prostatic carcinoma tissue has a phosphatase activity which is a thousand times higher than that of other tissues, and the specific pH value required for the scission exists only within the tumor. Consequently, the drug will be liberated selectively within the cancerous tissue by de-phosphorylation of the "masked" form. Since the free estrogen is relatively insoluble in the specific medium prevailing within the tumor, it will accumulate at the site. As a consequence, the action of the drug is intensive and long-lasting. German experimenters studied whether this drug affected the fertilized eggs of Parazentrotus lividus at the Zoological Station at Naples, Italy. Very small concentrations completely inhibited division of the eggs of the sea urchin and produced cytolysis. They also observed that, in humans, daily intravenous dosages of 50 to 250 mg. of Stilphostrol caused merely itching of short duration in the genital region. There was no observed hyperplasia of the mammary glands, even when treatment was continued over a period of weeks, with the total dose amounting to several grams. Even in patients who no longer responded to the usual type of estrogens, there was clinical response to Stilphostrol. The serum acid phosphatase began to decrease precipitously as early as the first day of injection, and in proportion to the dose of the drug. The rapid onset of action and the dosage confirmed the assumption that the drug acted directly on the tumor.

Karl Schwerdtfeger[5] observed that the prothrombin time was delayed in three of sixteen patients using Stilphostrol. These three patients had extensive metastases. Our experience has refuted the claims of this particular author, which suggest that this drug has a possible toxic effect on the liver. This has not been observed here. We have not, in the course of ten years, observed any toxic anemia.

Dr. Rubin H. Flocks noted subjective improvement in 100% of his patients.[6] There was a general appearance of well-being, improvement or abolition of bone pain, and a decrease in the symptoms of lower urinary tract obstruction.

As noted by Budniok and associates,[7] we have observed the following criteria for success of the drug: improvement in the general condition of the patient, improvement in voiding, and evidence of regression of the primary tumor. Loss of masculinity has not been observed in the age group of our patients. Mammary difficulties have been minimal and non-painful. No serious side effects have been noted.

Hudepohl[8] found no major changes in the blood picture following Stilphostrol therapy. No toxic damage of the liver and no change in the sedimentation rate were observed. His conclusions were, that high intravenous dosage could be given without toxic side effects; there was a specific affinity of the prostatic cell for this drug, which had cytotoxic effects; there was a rapid onset of action — metastatic pains were often relieved within the first few days of therapy; there was a rapid regression of the primary tumor and of matastases; in 84% of cases, the elevated serum acid phosphatase returned to normal, and clinical improvement occurred in 90%.

Analysis of Oral Stilphostrol Dosage

Table 2 reveals that 4.5% of our patients were started on an initial daily oral dose of 50 mg. of Stilphostrol. 40.9% required 200 mg. daily. The majority required 150-200 mg. for maintenance. 41.3%, however, which is a sizable percentage, required only 150 mg., and 8.7% only 50 mg. daily, to be kept symptom-free. It is therefore obvious there is no standard dosage for oral maintenance therapy, and that this must be adjusted individually to patients according to what is necessary to maintain them in a symptom-free

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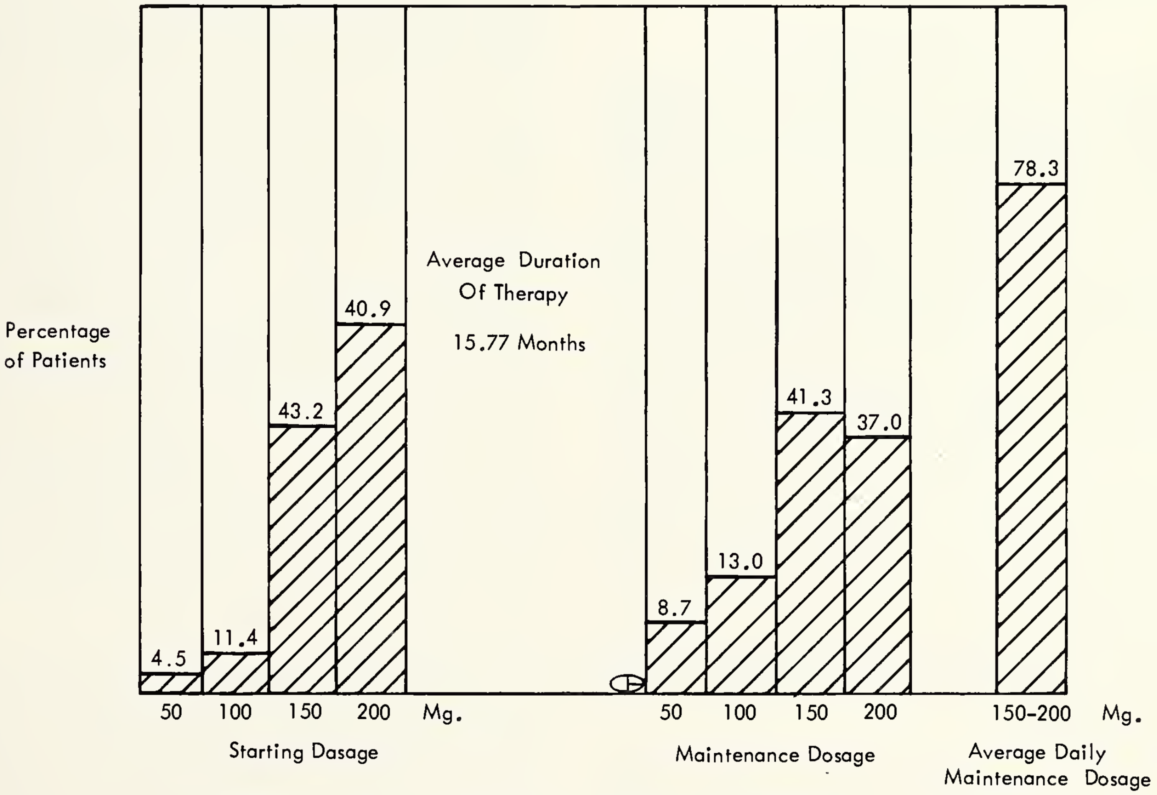
[2] Reference 1
[3] Reference 2
[4] Reference 3
[5] Reference 1
[6] Reference 4
[7] Reference 2
[8] Reference 2

TABLE 1

CLINICAL EXPERIENCE WITH STILPHOSTROL

		NO. OF PATIENTS	
TOTAL PATIENTS		49	
POSITIVE TISSUE DIAGNOSIS		47	
LOCALIZED DISEASE		25	
METASTATIC DISEASE		24	
POSITIVE REACTION TO INTRAVENOUS STILPHOSTROL	LOCALIZED	14	56 %
	METASTATIC	8	33 1/3 %
NEGATIVE REACTION TO INTRAVENOUS STILPHOSTROL	LOCALIZED	11	44 %
	METASTATIC	16	66 2/3 %

TABLE 2



*There were a total of 49 patients in the study. Five were excluded, leaving a balance of 44 patients. Of the 5 patients excluded, 2 patients received I. V. therapy only; 2 patients were on medication for less than two weeks; and one patient was on medication for an unknown period of time.

status. The average daily maintenance dose in 78.3% of the patients on long-term treatment was 150 to 200 mg. There were a total of 49 patients in this study. Five were excluded, leaving a balance of 44 patients. Of the five excluded, two received intravenous therapy only; two were on medication for less than two weeks, and one was on medication for an unknown period of time.

Table 1 reveals that 56% of the patients with advanced *localized* disease who received intravenous Stilphostrol experienced the typical perineal itching and burning characteristic of the presence of carcinoma of the prostate. It was surprising to find that 33-1/3% did not note this with metastatic disease, 44% with advanced localized disease did not experience the characteristic findings with intravenous therapy, and 66-2/3% with metastatic disease also did not note the typical rectal discomfort and perineal itching.

Although there appears to be no direct relationship between the *symptomatic* reaction of our patients to intravenous Stilphostrol and their survival time, it has been our observation that this typical reaction to the administration of intravenous Stilphostrol is extremely encouraging as to the hormone sensitivity of the particular lesion and the subsequent relief and control of symptoms over the years, using oral maintenance therapy.

Review of Five Typical Cases

Case 1. This patient's complaints were primarily local. He was first diagnosed in 1958, with no evidence of distant metastases and with normal upper urinary tracts. Because of trabeculation and cellule formation, transurethral prostatectomy was performed with the subsequent diagnosis of carcinoma of the prostate. He was started on Stilphostrol, with marked improvement in urinary symptons. He refused orchiectomy. There were recurrent admissions because of dysuria and decrease in force and volume of stream. Repeated determinations of residual urine were negative. In this particular case, the primary problem was that of recurrent voluntary discontinuation of hormone therapy with each discharge. It was subsequently recommended that he remain in our institution; and following a course of intravenous Stilphostrol, he was shifted to oral Stilphostrol maintenance. He is now 79 years of age, asymptomatic, with a history of proven carcinoma of the prostate of 14 years' duration, successfully managed with Stilphostrol.

Case 2 was admitted in urinary retention, with a BUN of 130 mg. %. He was asthenic, pale and weak. There was evidence of retrograde dilation of the right pelvicalyceal pattern, which appeared to be secondary to vesical neck obstruction. Cystogram revealed no evidence of reflux. Clinically, the prostate was benign. On catheter drainage, his BUN gradually fell and stabilized at 30 mg. %. Transurethral prostatectomy revealed adenocarcinoma, grade II. Because of the patient's age, radical prostatoseminovesiculectomy was indicated and subsequently performed. On readmission to the Medical Service for another condition, metastatic x-ray examination revealed osteoblastic lesions in the ribs and vertebrae. He was started on Stilphostrol, 50 mg. q.i.d., with Darvon p.r.n. as an analgesic for pain, and followed in the outpatient Urology Clinic. Clinic follow-up showed osteoblastic densities involving the ribs, spine and pelvis, but he remained free of pain and urinary symptoms. In January of 1972, because of increasing back pain, a course of intravenous Stilphostrol was given, with marked relief within seven days. He became ambulatory, with minimal discomfort in his left lumbar region, following which he was placed on oral Stilphostrol. He has remained asymptomatic since this date, in spite of his widespread bone metastases. He requires only 50 mg. of oral Stilphostrol three times daily.

Case 3. The patient's original tissue diagnosis was in 1964, and his disease extended to May of 1966, when he expired. On admission, he had metastases to his pelvic bones and lungs, and suggestion of pelvic lymphatic obstruction because of pitting edema of the legs, penis and scrotum. There were metastases to the ribs and various portions of the pelvis and sacrum. Although the upper urinary tracts showed no evidence of obstruction, there was vesical trabeculation and incomplete voiding on I.V. cystogram. He experienced the typical perineal itching and burning with administration of intravenous Stilphostrol. There was marked clinical response to therapy, with lessened bone pain and increased physical activity. Oral Stilphostrol followed. Foley catheter drainage was discontinued and the patient became continent.

This case illustrates how Stilphostrol can be used in the advanced prostatic carcinoma with widespread metastases. By using intravenous Stilphostrol followed by oral maintenance, the patient resumed normal voiding, without surgery, and remained free of bladder neck and urethral symptoms, although the course of his general disease was irreversible.

Case 4. This case illustrates the efficiency of Stilphostrol in controlling a difficult situation. This patient was admitted with complaints of cramps in several body regions, especially his legs. At this time, scattered nodules were seen in both lung fields. Metastatic series showed osteoblastic changes involving the left hemipelvis and scattered involvement of the entire spine. A rectal examination showed an indurated, fixed prostate. Transurethral biopsy in January of 1966 revealed carcinoma of prostate. Intravenous Stilphostrol, followed by oral maintenance, produced a remarkable response. Metastases in the lungs showed progressive clearing. The alkaline and acid phosphatase returned to normal. In spite of the initial effective response to hormone therapy, however, the patient's general condition gradually deteriorated. He became bedridden, his pelvic pains steadily became more severe, and he expired in October of 1967.

Case 5. This patient was diagnosed at another hospital, where he had a needle biopsy and bilateral orchiectomy and was started on diethylstilbestrol, which was continued between 1965 and 1970. On admission to our hospital, his prostate was stony-hard and fixed. He was started on Stilphostrol, 50 mg. q.i.d., and followed in our G.U. Clinic. Metastatic series in March of 1970 revealed diffuse involvement of all bones of the spine and pelvis. Because of increasing back pain, he was admitted to the hospital in April of 1970 and given a course of intravenous Stilphostrol. Within 24 hours, his back pain had improved; and by May, he was ambulatory and asymptomatic, and was able to return to our domiciliary unit on Stilphostrol, 50 mg. 4 times a day. He is being followed in the Urology Clinic; and despite his widespread osteoblastic lesions, including those of the thorax, he remains asymptomatic.

The treatment of prostatic carcinoma varies widely, depending on the extent and degree of malignancy of the growth. Basically, there are two methods of treatment: 1) destroy the original local lesion; 2) give palliative therapy.

In the treatment of advanced cancer of the prostate, several problems are involved: 1) relief of pain; 2) ability of the patient to urinate without difficulty; 3) confinement of the lesion; 4) avoidance of surgery whenever possible, because the invasion by the surgeon of any malignancy, when it is not curable, tends to promote its spread.

Using intravenous and oral Stilphostrol over the past ten years, we have been able to avoid the latter problem except in rare circumstances. In no other advanced cancer is it desirable to invade the lesion when curative measures are not expected, and it should be true in cancer of the prostate.

If the patient on intravenous Stilphostrol does not experience the typical perineal itching, burning or discomfort, then, in our experience, orchiectomy is definitely indicated, because it indicates diminished hormone sensitivity.

The typical patient with advanced localized carcinoma of the prostate presents with urinary incontinence, dysuria, and decrease in force and diameter of stream, as a result of invasion by the tumor of the external urinary sphincter. Following intravenous Stilphostrol therapy, the acute symptoms subside and the patient is then placed on oral regimen. Clinical results are relief of symptoms and recovery of urinary continence, which are obviously due to regression of the tumor without the necessity for transurethral surgery or orchiectomy. Most of the patients who require this surgery, are not good candidates for any elective procedure.

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It is a good morning exercise for a research scientist to discard a pet hypothesis every day before breakfast. It keeps him young. — Konrad Lorenz *On Aggression*, New York Bantam Books, 1970.

Eosinophilic Leukemia and Myelofibrosis with Acute Blastic Termination

Report of a Case with Review of Literature

Morton D. Grant, M.D., Herbert I. Horowitz, M.D.,
Bozidar M. Lazarevic, M.D. and Arthur R. Spielvogel, M.D.

Abstract — An illness occurred in a 16-year-old Negro male characterized by marked blood eosinophilia, pruritus, anemia and thrombocytopenia. The patient showed features of chronic eosinophilic leukemia, myelofibrosis with myeloid metaplasia, Loffler's endocarditis and vasculitis and terminally, two years from the time of diagnosis, acute myeloblastic leukemia. Some of these symptoms were ameliorated by treatment with busulfan, dibromomannitol and prednisone. This case report emphasizes the interrelationships of the "hypereosinophilic syndromes" and suggests that vasculitis and endocarditis may be a consequence of eosinophilic proliferation regardless of its cause.

Introduction

Over 100 patients with elevated white blood counts, peripheral eosinophilia, transient pulmonary infiltrates, cardiomegaly and progressive downhill course have been reported.[1-6] While some of these patients have shown immature eosinophiles, intensive tissue infiltration and blastic bone marrows at autopsy, most have had mature eosinophiles.[3] Thus, some authors have doubted whether eosinophilic leukemia is a true entity and instead believe that most if not all reported cases are examples of a spectrum of disorders (Loffler's endocarditis fibroplastica,[7] disseminated eosinophilic collagen disease,[2] etc.) where the eosinophilia is a response to an underlying collagen vascular disorder rather than an independent neoplastic poliferation.[2-6] Beneveneisti and Ultman[1] have identified 43 patients from the literature and added five from their own experience as examples of eosinophilic leukemia. Of these 48, two showed features of myelofibrosis with myeloid metaplasia. We are reporting an additional patient with this unusual finding.

Case Report

W.P., a 16-year-old Negro male was first seen in December, 1967, with complaints of one year's duration, consisting of dizziness, tiredness, nosebleeds and scrotal pruritus.

Physical examination revealed a barely palpable liver and spleen and two small, freely movable, nontender axillary lymph nodes. The blood count showed: Hematocrit, 43%; Reticulocytes, 1.9%; WBC, 43,300/mm^3 with 70% eosinophiles, 14% neutrophiles, 1% metamyelocytes, 10% lymphocytes, 2% monocytes and 3 nucleated red blood cells/100 WBC's and 125,000 platelets/mm^3. There were large numbers of tear drop red blood cells, polychromasia and large, bizarre platelets.

Bone marrow aspiration disclosed increased cellularity with myeloid hyperplasia, predominantly eosinophiles. Megakaryocytes and erythroid precursors were mildly reduced. Iron stores were plentiful.

The direct and indirect Coombs', sickle cell and lupus erythematosis preparations were negative, the erythrocyte sedimentation rate was 8 mm/hour, the uric acid ranged from 9.6 to 11.8 mgs% and the haptoglobin ranged from 112 to 322 mgms/100 ml. Blood sugar, BUN, alkaline phosphatase, SGOT, LDH, bilirubin, B.S.P., cholesterol, cephalin flocculation, serum iron and serum iron binding capacity, VDRL and urinalysis were within normal limits. Serum proteins totaled 7.6 gms.% with 5.5 albumin and 2.1 globulin. Neutrophile alkaline phosphatase (LAP) was 0, serum B^{12} values ranged from 5,380 to 10,100 picograms % and serum folate was 4.3 Ng/ml. Two subsequent determinations showed no measurable folic acid at a time when the patient was not on antibiotics.

In October, 1968, anemia was noted for the first time. The liver had enlarged to 5 cm. below the right costal margin and spleen to 8 cm. below the left. Hematological findings and subsequent course are

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DR. MORTON D. GRANT, formerly Fellow in Hematology at the Bronx-Lebanon Hospital Center, Bronx, New York, now Associate Attending, Department of Medicine, St. Agnes Hospital, White Plains, New York.

DR. HERBERT I. HOROWITZ, formerly Director of the Department of Hematology, the Bronx-Lebanon Hospital Center, now deceased.

DR. BOZIDAR M. LAZAREVIC, formerly Associate Pathologist at the Bronx-Lebanon Hospital Center, now Assistant Pathologist at the Roosevelt Hospital, New York City.

DR. ARTHUR R. SPIELVOGEL, Associate Professor of Medicine, Department of Hematology, the Bronx-Lebanon Hospital Center.

shown in Figure I. A Vim-Silverman bone marrow biopsy now showed prominent fibroblastic proliferation, eosinophilia and focal clusters of blasts with further reduction of megakaryocytes and erythroid precursors. Cytogenetic studies done on the aspirated marrow showed no chromosomal abnormalities. A cervical lymph node biopsy disclosed zones of follicular effacement, the presence of small numbers of eosinophiles and their precursors but no evidence of capsular infiltration. A percutaneous liver biopsy showed portal and parenchymal infiltration with mature eosinophiles and round cells with no evidence of parasites.

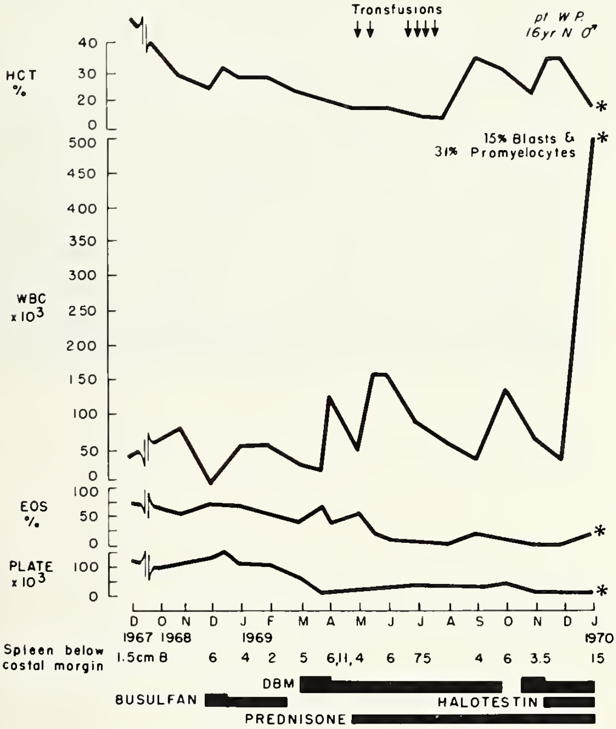

Figure 1
Patient's hematological course

The patient was started on Busulfan, 6 mgms., and Allopurinol, 300 mgms. daily. Busulfan was then reduced to 2 mgms., daily. On this treatment, his pruritis promptly abated, the spleen was reduced in size and the total white blood count fell to 13,000/mm³ with 51% eosinophiles. Busulfan was discontinued as the patient became increasingly anemic and thrombocytopenic. He was started instead on Dibromomannitol, 300 mgms., daily, and did well until April, 1969, when he was rehospitalized with anemia, thrombocytopenia and congestive heart failure. A lung scan revealed bilateral areas of probable infarction. Chest X-ray showed cardiomegaly and congestion. Radiological survey of the pelvis and long bones revealed changes consistent with myelosclerosis. Chromium^{51} red blood cell half-life survival was seven days.

In November, 1969, he was rehospitalized with suspected pneumonia. Chest X-ray showed bilateral infiltrations. The blood histamine level was 76 x 10 ^{6} mcgms. of free histamine base/mm³ of whole blood, a value that is considered to be normal.[8] Symptoms cleared without specific therapy. He was started on fluoxymesterone, 60 mgms. daily, in an attempt to improve his anemia.

In January, 1970, the patient was admitted with congestive heart failure and pruritus. His appearance was Cushingoid, the spleen 15cm. below the left costal margin and the liver 9cm. below the right. The WBC was 500,000/mm³ with 31% promyelocytes, 15% blasts and 20% eosinophiles. He was anemic and thrombocytopenic. Before treatment for acute leukemia could be instituted, the patient became comatose and expired.

Autopsy was limited to the trunk. The heart was flabby and weighed 410 grams. There was left and right ventricular hypertrophy with an early organizing mural thrombus in the apex. Chronic endocarditis with fibrous thicking and focal myocardial fibrosis were present in the posterior and lateral walls of the left ventricle. This had caused severe atrophy of the posterior papillary muscle, fibrosis of its chordae tendinea and functional insufficiency of the mitral valve. The ventricular myocardium was infiltrated in a scattered fasion by neutrophilic leukocytes, eosinophiles and eosinophile precursors. This acute inflammatory process extended to and involved the epicardium (Figure 2). In the lungs there was acute bronchopneumonia and focal eosinophilic infiltrates. The liver was markedly enlarged (weight: 3250 grams). The portal spaces were crowded with eosinophiles and their precursors. Similar infiltrations were seen in the kidneys, the adrenal glands and the gastric mucosa. The spleen was also markedly enlarged (weight: 1880 grams). Multiple small and large infarcts were present. The sinusoids were packed with eosinophiles and their precursors. Megakaryocytes and focal collections of normoblasts were also present. Within the walls of the penicillar arteries were neutrophiles and eosinophiles. The mediastinal and retroperitoneal lymph nodes measured from 1.5 to 2.5 cm. in diameter. These showed eosinophilic infiltrates and foci of extramedullary hematopoiesis. The fat spaces of the bone marrow were almost totally replaced by hyperplastic hematopoietic marrow. This showed predominantly granulocytic hyperplasia, mainly of the eosinophilic series. Approximately 20% of the total cell population consisted of blasts and promyelocytes. The megakaryocytes and erythroid

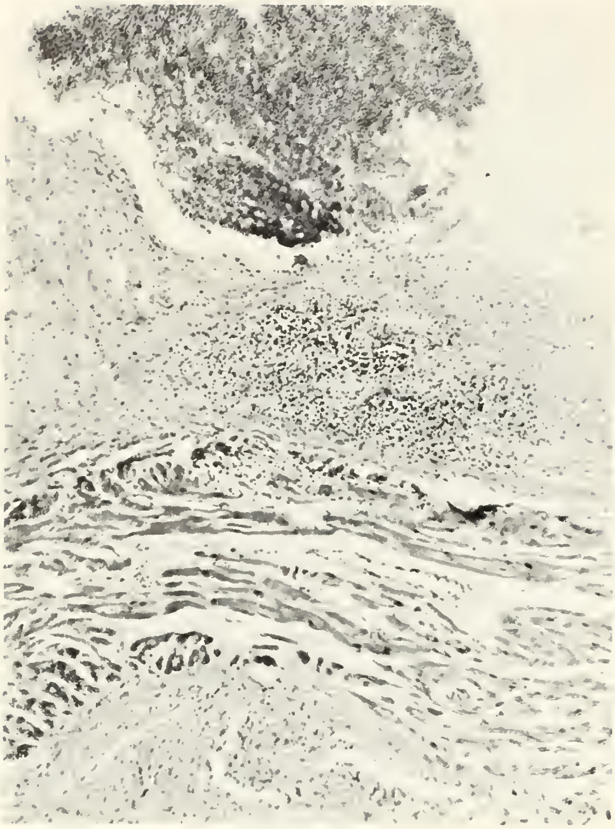

Figure 2

A recent mural thrombus overlying endocardium which is markedly thickened by fibrosis and is infiltrated with eosinophiles. The subendocardial myocardium shows a focus of fibrosis. Hematoxylin and Eosin stain x 40.

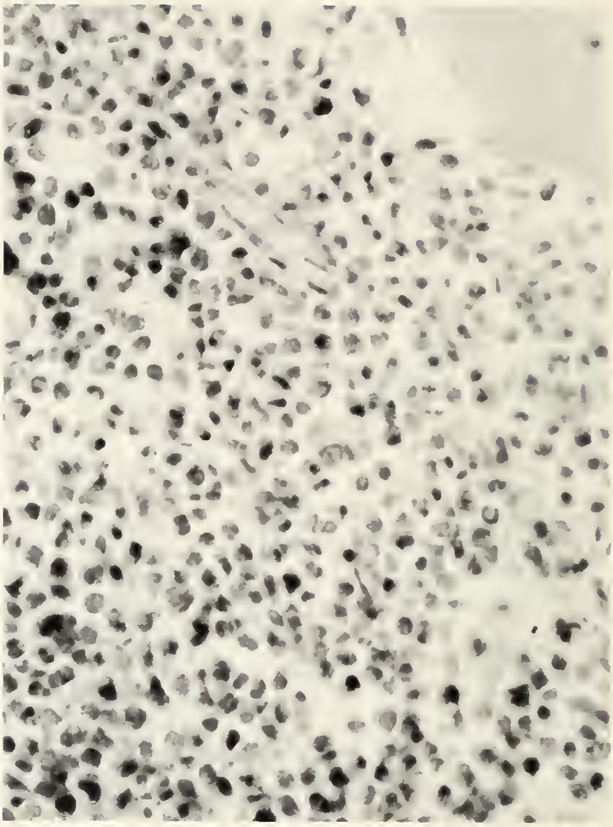

Figure 3

Hyperplastic terminal marrow with blast cells, eosinophiles and their precursors. Hematoxylin and Eosin stain x 400.

precursors were greatly reduced in number. There was no evidence of myelofibrosis (Figure 3).

Discussion

There is considerable controversy with regard to the neoplastic nature of eosinophilic leukemia because these patients frequently have associated findings of a non-leukemic nature. Bousser[4] and Odeburg[3] studied twenty-five cases of eosinophilic leukemia more than half of which had Loeffler's endocarditis. Loeffler[7] originally described endomyocardial necrosis with an inconstant, often transitory eosinophilia of possibly allergic origin. Roberts, Liegler and Carbone,[6] cited this finding in three of their cases and concluded that eosinophilic leukemia is in reality Loeffler's endocarditis. Hardy and Anderson[5] emphasized the malignant nature of eosinophilic leukemia and its close relationship to fibroplastica endocarditis, Loeffler's syndrome, tropical eosinophilia and certain varieties of vasculitis, based upon the many common features eosinophilic leukemia shares with these hypereosinophilic disorders.

Since we are dealing with disorders of unknown etiology, the distinctions among these entities are morphological. We nonetheless believe that it is important to keep two groups of patients with hypereosinophilia separate. In one, cardiomegaly, endocarditis, congestive heart failure, pulmonary infiltrates and pruritus occur without confirmatory manifestations of chronic myelogenous leukemia such as the Ph' chromosome, decreased leukocyte alkaline phosphatase, prominent tissue infiltration by immature leukocytes or increased numbers of leukemic myeloblasts in the marrow. The second group, as exemplified by the patient here presented, may develop the same symptoms and even show endocarditis and vasculitis, but does have clear cut evidence of leukemia in addition to eosinophilia. Since prolonged eosinophilia is the common denominator to these groups, we suggest that these findings may be a consequence of eosinophilic proliferation regardless of its cause.

Of particular interest in the present patient were findings consistent with a diagnosis of myelofibrosis and myeloid metaplasia. These included hepatosplenomegaly, adenopathy, anemia, throm-

TABLE I

FINDINGS IN PATIENTS WITH EOSINOPHILIC LEUKEMIA AND MYELOFIBROSIS

Case Number (Reference)	*Age*	*Sex*	*Duration to Death*	*Ph'Chromosome*	*LAP (units)*	*Myeloid Metaplasia*	*Blast Crisis*
1 (1)	81	M	2 years	neg	54	present	absent
2 (1)	57	M	2 days	NR	40	absent	absent
3 (1)	75	F	3 years	neg	NR	absent	absent
4 (10)	51	F	3 months	NR	NR	present	present
5 (PR)	16	M	2 years	neg	0	present	present

PR — present report
NR — not reported

bocytopenia, a leuko-erythroblastic blood picture, tear drop poikilocytes, polychromasia, reticulocytosis, large platelets, prominent marrow fibrosis present before busulfan therapy, extramedullary hematopoiesis, shortened red cell survival, normal cytogenetic studies, hyperuricemia, elevated serum B^{12} and depressed folate levels, radiological bone changes, a diminished neutrophile alkaline phosphatase value and a terminal phase of acute myeloblastic leukemia.[9]

Four similar instances have been reported (three by Benvenisti and Ultman[1] and one by Papageorgiou[10]) though two[1] showed myelofibrosis without myeloid metaplasia. Details of the four patients and the present patient are given in Table I. The Ph' chromosome was absent in the three patients so investigated. Two of the three patients who had LAP determinations fell into the normal range; the LAP score was 0 in the third. (It is important to emphasize that the count should be done on neutrophiles, since eosinophiles and their precursors lack stainable LAP.) The illness terminated in acute myeloblastic leukemia in two of the five patients, but was still rapidly lethal (2 days to 3 years) in the other three. In all these respects, as well as in its relatively poor response to chemotherapy, the illness is consistent with atypical, Ph' chromosome negative chronic myelogenous leukemia. Eosinophilic leukemia with myelofibrosis as an entity thus fits well in Dameshek's concept of the myeloproliferative syndromes.

In general, the therapy of eosinophilic leukemia has not given good results. 6-Mercaptopurine,[1, 5] cyclophosphamide,[1] urethane,[1] irradiation to the spleen[1] and splenectomy[6] have not been effective. Busulfan, which has been useful in chronic myelogenous leukemia[11] and in myelofibrosis and myeloid metaplasia[12] but not in eosinophilic leukemia[1, 13] diminished splenic size and the white blood count but had to be discontinued because of its adverse effect on our patient's hematocrit and platelet count. Prednisone reduces the eosinophilia in eosinophilic leukemia[13, 14] and in our patient also decreased the blood transfusion requirements. Dibromomannitol, which is effective in the treatment of chronic myelogenous leukemia,[15] helped maintain reduced spleen size and total white blood count in our patient and in this respect was of benefit.

Acknowledgements

We wish to thank Dr. Kurt Hirschorn, Mount Sinai Medical School, for the chromosomal studies and Dr. Babette Weksler, Cornell Medical College, for the histamine determinations.

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Bioavailability of Digoxin: What the Clinician Needs to Know

David J. Greenblatt, M.D., David W. Duhme, M.D.,
Jan Koch-Weser, M.D. and Thomas W. Smith, M.D.

Abstract — **Digoxin tablet preparations which contain the same content of digoxin can differ greatly in bioavailability or the extent to which they are absorbed from the gastrointestinal tract after oral administration. Bioavailability of digoxin is determined by the rate at which the drug dissolves from the tablet within the stomach and proximal small intestine. *In vitro* dissolution rate correlates well with bioavailability as measured by serum concentrations or urinary excretion of digoxin. Rapid-dissolution tablets have bioavailability equivalent to digoxin elixir, but even digoxin elixir is incompletely absorbed. Slow-dissolution tablets are less bioavailable than rapid-dissolution preparations. Under new FDA requirements for minimum rates of dissolution, differences in bioavailability among digoxin tablets marketed in the United States are no longer likely to be clinically significant.**

Over the past 3 years the medical literature has been flooded with articles about variations in the bioavailability of oral digoxin preparations. Practicing physicians may find it difficult to interpret the vast amount of experimental data and to determine its relevance to patient care. The purpose of this article is to provide a clinically useful summary of pertinent facts about the bioavailability of digoxin. Many of our conclusions and recommendations are based upon a series of studies performed in the Clinical Pharmacology and Cardiac Units of the Massachusetts General Hospital.

What is Bioavailability?

"Bioavailability" or "biologic availability" describes the degree to which a drug is absorbed from a given dosage form into the body. For many drugs the intensity and duration of biologic activity is related to the quantity of drug that reaches the systemic circulation. This is true for digoxin. The intensity of digoxin's cardiac action is proportional to its concentration in blood reaching the heart. Thus, the practical problem of measuring the bioavailability of oral digoxin is one of determining how much of a given dose is absorbed from the gastrointestinal tract and reaches the systemic circulation.

How is Bioavailability Measured?

A quantitative assay for the drug in question must be available before bioavailability can be measured. Concentrations of digoxin in serum after usual therapeutic doses are very low and cannot be measured by classical physicochemical or chromatographic methods. In 1969, a radioimmunoassay for digoxin was developed at the Massachusetts General Hospital. The assay is sensitive to concentrations as low as 0.2 nanograms per ml (0.0002 micrograms per ml). The digoxin radioimmunoassay has been used as a tool for many important studies of pharmacokinetics and bioavailability.

Digoxin bioavailability is determined by two general methods. The first involves measurement of serum concentrations of digoxin at one or more points in time after a given dose or series of doses. From a graph of serum concentration *vs* time, one can calculate the area under the curve. The second method involves collection of urine, measurement of urine volume and digoxin concentration, and calculation of urinary excretion of digoxin. We have compared the relative usefulness of these two methods in studies of healthy male volunteers who received single doses of digoxin.

Area under the serum concentration curve. After a single dose of digoxin, the quantity that reaches the systemic circulation is accurately reflected by the area under the curve of serum concentration *vs* time. However, actual measurement of area under the serum concentration curve (ASC) has important limitations. Multiple serum concentration determinations and thus multiple blood samples are needed to define the curve accurately. After the first day,

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DR. DAVID J. GREENBLATT, Clinical Fellow in Medicine (Clinical Pharmacology), Massachusetts General Hospital; Research Fellow in Pharmacology, Harvard Medical School; Research Fellow of the Medical Foundation, Incorporated, Boston. DR. DAVID W. DUHME, Clinical Fellow in Medicine (Clinical Pharmacology), Massachusetts General Hospital; Research Fellow in Pharmacology, Harvard Medical School. DR. JAN KOCH-WESER, Associate Physician, Massachusetts General Hospital; Chief, Clinical Pharmacology and Hypertension Unit, Massachusetts General Hospital; Associate Professor of Pharmacology, Harvard Medical School. DR. THOMAS W. SMITH, Assistant Physician, Massachusetts General Hospital; Associate Professor of Medicine, Harvard Medical School.

Address reprint requests to Dr. Greenblatt at the Clinical Pharmacology Unit, Massachusetts General Hospital, Boston 02114.

serum concentrations fall to levels which are too low to be measured reliably. Most important, ASC is influenced by *rate* as well as by *completeness* of drug absorption. In our studies, ASC determined for the first 8 hours after digoxin administration showed considerable variability, not only among different subjects receiving the same preparation, but also when the same subject received the same preparation on several occasions. Thus, we found that ASC was only a moderately useful measure of bioavailability.

Urinary excretion of digoxin. Digoxin undergoes little metabolism in the human body. Most of a given dose is excreted unchanged in the urine after glomerular filtration. Thus, urinary excretion represents an "integration" of the serum digoxin concentration curve over the period of collection which remains accurate even when serum concentrations are very low. The rate of drug absorption becomes unimportant if urine is collected over periods of several days.

In our studies, the subjects collected all urine for six days after digoxin administration. We found that 6-day cumulative urinary excretion of digoxin (CUE) showed much less between-subject variability than ASC. Thus CUE was the more reproducible and useful measure of bioavailability. However, this method also has limitations. Subjects must have normal renal function, and they must be reliable enough to provide complete collections. Contrary to traditional teaching, urinary creatinine excretion is not always an adequate index of the completeness of urine collection since it varies significantly from day to day in a given subject.

A bioavailability standard. Bioavailability testing is most meaningful when results can be compared with a reference standard. For our studies we chose a standard which was "100% bioavailable" — namely, intravenous digoxin. All subjects received 0.75 mg. digoxin by a one-hour continuous intravenous infusion. CUE after intravenous dosage was a highly reliable and reproducible standard — the standard deviation was only 2% of the mean for 8 subjects. Eight-hour ASC and 6-day CUE after intravenous dosage for each subject were compared with the same measures after ingestion of 0.75 mg. of the oral preparations being tested.

What Determines Bioavailability of Oral Digoxin?

The bioavailability of digoxin tablet preparations can vary greatly between formulations produced by different manufacturers, and even between lots made by the same company. These differences are not due to variations in the actual content of drug in the tablet. All tablets labeled as "Digoxin, 0.25 mg" must, by law, contain the stated content of digoxin within a narrow range of tolerance. Differences in bioavailability are due mainly to variations in the rate at which digoxin in powder form becomes dissolved in liquid within the gastrointestinal tract.

The *dissolution rate* of digoxin tablets depends upon the techniques used to prepare and package the tablets. If the particles of digoxin are large or if the tablet is tightly compressed, the drug will dissolve slowly in the gastrointestinal tract and be poorly absorbed. When drug particle size is small and tablets are loosely packed, bioavailability is improved. If digoxin is dissolved in liquid prior to ingestion and given in solution or elixir form, bioavailability reaches the maximum for an oral preparation. In our studies the bioavailability of digoxin elixir was greater or equal to that of all tablets tested no matter how rapid the dissolution rate.

Tablet dissolution rates are measured by a simple *in vitro* test. Tablets are placed in a rotating basket within a liquid medium. Samples taken at various times from the liquid medium are assayed for digoxin concentration, so that the tablet dissolution rate can be calculated.

How is Bioavailability Related to Dissolution Rate?

Eight healthy male volunteers from our laboratory received single doses of 0.75 mg of various digoxin preparations in a multicrossover study. Bioavailability of each preparation was determined by the area under the 8-hour serum concentration curve and 6-day cumulative urinary excretion of digoxin calculated as the mean for all 8 subjects.

Table 1 shows comparative bioavailability of digoxin elixir and two tablet preparations having *in vitro* dissolution rates of 85% and 64% respectively. These are compared with intravenous digoxin used as a reference standard. The elixir and "rapid-dissolution" tablet do not differ significantly from each other, but both are significantly more bioavailable than the "slower-dissolution" tablet. None of the oral preparations, however, approached 100% bioavailability when compared to intravenous digoxin. Thus, rapid-dissolution tablets have biologic availability equivalent to digoxin elixir, but even these oral preparations are incompletely absorbed from the gastrointestinal tract.

What Does it Mean to the Clinician?

In our study the differences between slower- and rapid-dissolution preparations were statistically significant but averaged only about 25%. Such differences are unlikely to be clinically important in view of the large individual variations in the clinical response to digitalis glycosides. Under new Food and Drug Administration regulations, all digoxin

TABLE 1

BIOAVAILABILITY OF VARIOUS ORAL DIGOXIN PREPARATIONS COMPARED WITH INTRAVENOUS DIGOXIN IN SINGLE-DOSE (0.75 mg) CROSSOVER STUDIES USING 8 HEALTHY MALES

Preparation		*Area Under 8-Hour Serum Concentration Curve* (ng x min.) / ml*	*% of Intravenous*	*6-Day Cumulative Urinary Excretion* (mg)*	*% of Intravenous*
Intravenous		1090 (± 9.7%)	100%	0.57 (± 2.2%)	100%
Elixir		703 (± 41.3%)	65%	0.36 (± 6.2%)	64%
Tablet	(*in vitro* dissolution rate: 85% in one hr.)	687 (± 21.7%)	63%	0.38 (± 13.8%)	68%
Tablet	(*in vitro* dissolution rate: 64% in one hr.)	473 (± 32.6%)	43%	0.31 (± 14.1%)	55%

*Given as mean for 8 subjects (± standard deviation as % of mean)

tablets produced in the United States must have *in vitro* dissolution rates of at least 55% in one hour. This regulation will prevent marketing of "very-slow-dissolution" tablets with poor biologic availability and provide some assurance that all tablet preparations have clinically adequate bioavailability. Burroughs Wellcome brand of digoxin (Lanoxin®) comprises about 85% of all digoxin used in the United States. Lanoxin® tablets have *in vitro* dissolution rates consistently in the range of 75% in one hour. Physicians who prescribe Lanoxin® tablets can be assured of high and reliable bioavailability.

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SUGGESTED READING

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The main hazard of technologic advances is the inordinate acceptance of an irrefutable fact in an area of biology which cannot be defined as an exact science. Despite well documented errors in reproducibility and accuracy in approved clinical laboratories there not uncommonly is a blind acceptance of the laboratory report even if contrary to clinical experience. Erroneous deductions drawn from laboratory findings continue to take their toll both in morbidity and even mortality from ill-advised diagnostic or therapeutic procedures. — R. H. Kampmeier

The President's Page

Today we are facing a changing world. Nor is this change slow and plodding as it used to be. The acceleration of this change can be ignored no longer. The very foundation of our industrial society is beginning to shake. Old accepted power structures are finding that they must either adapt or become impotent. The social revolution is more powerful than any of them singly or in combination. Transiency and novelty are replacing permanency. Organizations and people all over the place are threatened with the syndrome of future shock.

The power structure of organized medicine has been around a long time, and it has taken a long time for it to realize that changes in society are inevitable. Even now some of us don't seem to realize it.

However, the AMA is finally beginning to change. So are the State societies and even some of the more alert County Societies. It is even reaching the grass roots in spots.

If organized medicine is the media through which we should attain our goals, and I believe it is, then we must meet the challenges that will help us adapt to the changing times and at the same time preserve the very basic structures upon which the high quality of medical care are based.

The process of change is very traumatic, particularly to some physicians. Therefore, we must try to ease the profession as softly as possible into the changes that are necessary if we wish to avoid a total takeover by government.

One of these challenges is accountability. Suddenly we find that we are accountable to the people for what we do — and even for what we charge. Through our own Peer Review Organizations, we can handle this. For the right to do this ourselves we must fight with all our energy. This is one of the things organized medicine is trying to do for its membership. We need all the help we can get.

Another challenge is a call for unity within the profession. Our infighting must stop. I realize that our primary fight is to protect the facility of the office of the private practicing physician, and this your leadership will do. But we must realize also that there are those among us who have chosen different modalities of practice. They also look to us for leadership, and we must protect their basic rights with equal vigor.

However, if the government subsidizes one modality, it should subsidize all modalities.

The third challenge is the maintenance and improvement of quality medical care in the State of Connecticut in spite of the overriding cost consciousness of the National and State governments. Cost is secondary to quality. But cost is a factor of which we must be very conscious. Any cost which is not necessary to maintain the highest quality medical care for the patient must be eliminated in so far as possible. This is something we may not have thought enough about in the past.

The fourth challenge is morality in the face of political expediency. We are the guardians of the health of the people of Connecticut. To bow to political pressure if it meant the sacrifice of this principle would be abhorrent above all else. Political expediency is a matter of judgement and must not transcend the concepts of Christian morality and human dignity. Such pressures we have faced before, and such pressures we shall face again. On this issue we must stand firm.

A fifth challenge is to understand the processes of government so that we may better cope with the dangers.

And a sixth challenge is to keep abreast of clinical medicine so that we can maintain the high quality of medical care that we wish our patients to receive. Nor may we forget education for health for the public particularly in the school systems.

And there are other challenges which are perhaps equally important but for which space does not allow.

James H. Root, Jr., M.D.,
President

JAMES H. ROOT, JR., M.D.
President

Born: March 24, 1916

Formal Education:
  Primary School — McTernan School for boys — 1931
  Secondary School — Taft School — 1935
  College — Amherst College — 1939
  Medical School — Syracuse University College of Medicine — 1943 — President Nu Sigma Nu Fraternity
  Pediatric Internship — Yale New Haven Hospital — 1943
  Junior and Senior Residencies in Pediatrics — Bobs Roberts Hospital, University of Chicago — 1944-1945.

Armed Services — Army of the United States 1945-1947 — Captain.

Hospital Affiliations:
  Waterbury Hospital — Attending Staff in Pediatrics
    Chief of Pediatrics — Past
    Chief of Staff — 1962, 1963, 1964 — Past
    Staff Executive Committee — Past
    Joint Conference Committee — Past
    By-Laws Committee
    Utilization Committee — Past
    Continuing Medical Education Committee and others
  St. Mary's Hospital — Courtesy Staff in Pediatrics

Organized Medicine:
  Specialty Societies:
    American Academy of Pediatrics
      Connecticut Chapter of AAP
        Vice-Chairman — Past
        Steering Committee — Past
        Chairman Public Relations Committee — Past
        Council on Pediatric Practice
      Pediatric Section of Connecticut State Medical Society
        President — Past
      New England Pediatric Society
  Waterbury Medical Association
    President — 1970
    President-elect — 1969
    Chairman Public Relations Committee — Past
    Secretary — Past
    Executive Committee — Past
    Planning Committee
    Medical Ethics Committee — Past and others
  Waterbury Area Foundation for Medical Care
    President — Past
    Board of Trustees — Past

New Haven County Medical Association
  - President — 1971
  - Vice President — 1970
  - Board of Governors — 13 years
  - Chairman Public Relations Committee — Past
  - Chairman Third Party Payments Committee — Past
  - Review Committee — Past
  - Long Range Planning Committee
  - Councilor — 1972
  - Associate Councilor — 1969-1972
  - Planning Committee (liaison with health planning groups) and others
  - Delegate to Tolland County — Past
  - Delegate to Fairfield County

New Haven County Foundation for Medical Care
  - Board of Trustees
  - Chairman Membership Committee
    - Other committees

Connecticut State Medical Society
  - President — 1974
  - President-elect — 1973
  - Vice President — 1972
  - Delegate to Massachusetts Medical Society — 1972-1973
  - Delegate to New York State Medical Society — 1974
  - Councilor and Associate Councilor from New Haven County — 1969-1972
  - Chairman Third Party Payments Committee — Past
  - Chairman Public Relations Committee — Past
  - Chairman Public Affairs Division — Past
  - Chairman Committee on Group Practice — Past
  - Public Affairs Committee
  - National Legislation Committee — Past
  - State Legislation Committee — Past
  - Peer Review Organization Committee
  - Committee on Medicine and Religion — Past
  - Liaison Committee with Connecticut General Insurance Co. — Past
  - Liaison Committee with State Welfare Dept. — Past
  - Statewide Medical Planning Committee
  - Ambulatory Care Study Advisory Committee
  - Ad Hoc Advisory Committee to "Connecticut Medicine"
  - Joint Connecticut State Medical Society — Connecticut Hospital Association Review Committee and others
  - House of Delegates of the Connecticut State Medical Society — 13 years

Connecticut Medical Political Action Committee
  - Board of Trustees

Health Related Organizations:
  - Child Guidance Clinic of Waterbury — Board of Trustees — Past
  - Remedial Reading Research Center — Board of Trustees — Past
  - Central Naugatuck Valley Mental Health Council Board of Trustees — Past
  - Vice-Chairman — Past and several committees — Past
  - Central Naugatuck Valley Comprehensive Health Planning Council
    - Board of Trustees
    - Executive Committee
    - Review and Evaluation Committee
    - Pediatric Study Advisory Committee
    - Guidelines Review Committee

- Waterbury Mental Health Association — Board of Trustees — Past
- Medical-Dental Advisory Committee to Preliminary School Program — Past and others

Non-Health Related Organizations:

- Watertown Library — Board of Trustees — Past
- Watertown Tennis Club — Board of Trustees — Past
- Watertown Foundation
  - President — Past
  - Board of Trustees
  - Student Loan Committee — Past
  - Project Committee
- Watertown Citizens Committee — Past
- Waterbury Chamber of Commerce
  - Health and Environment Committee — Past
- Litchfield County
  - University Club

Author

- Booklet — "As The Twig Is Bent" — 1954
- Booklet — "Discipline in Children" — 1958
- Book — "The God-Complex" — 1969
- Unpublished Book "The Fifth Dimension"
- Unpublished Poems

Hobbies:

- Philosophy
- Photography
- Tropical Fish
- Science Fiction

Particular Interest:

1. Philosophy of Medicine
2. Policy Formation for Organized Medicine.
3. The Administration of such policy
4. The Organization of Organized Medicine
5. The Relationship of Organized Medicine to Third Party Payors
6. The Maintenance of the Highest Quality Medical Care for all in the United States with the Preservation of the Doctor-Patient Relationship under a Free Enterprise System
7. The Relationship of Medicine to Government

Active Private Practice in Pediatrics: 27 years

JAMES H. ROOT, JR., M.D., *President*

Connecticut Medicine

Editorials

The Fat Embolism Syndrome

The fat embolism syndrome, encountered most commonly after long bone fractures, is not an isolated phenomenon, but a catastrophic complication of trauma and the associated shock, hemoconcentration, acidosis, and poor tissue perfusion. A variety of biochemical changes occur in the plasma during shock with disruption of the lipid suspension system allowing the production of free fatty acids and free fat to appear and be distributed in the pulmonary capillaries. The abnormal amount of the more toxic free fatty acids released by the lipase reaction of the pulmonary parenchyma and the congested poorly perfused pulmonary capillary bed produces endothelial damage, platelet aggregation, inactivation of lung surfactant, increased capillary permeability, decreased lung compliance and a lowered arterial oxygen tension.[2] The resultant pulmonary parenchymal damage produces increased physiologie dead space and severe hypoxemia caused by ventilation perfusion inequality and an associated increased right to left blood shunt. Investigators have postulated that the disseminated intravascular coagulation found in the fat embolism syndrome may also account for the associated anemia and thrombocytopenia.[3 6]

Interesting experimental evaluation of the hemodynamic and pathologic findings in experimental fat embolism have been carried out.[1 5 6] These observers utilized a canine oleic acid model for studying experimental fat embolism and from their studies it appeared that fatty acids and neutral fat were the cause of destructive pulmonary changes. The pathologic findings in the lungs of this experimental animal model closely resemble those found in the lungs of patients dying of fat emboli. Various observers[3 5] comparing the pathologic and physiologic findings between neutral fats and fatty acids after intravenous injection shows that death from neutral fat embolus was strictly an obstructive process associated with diminished pulmonary flow resulting in pale, anemic lungs with the animal eventually dying of right ventricular failure. The injection of fatty acids, on the other hand, produced marked destructive changes in the lung resulting in an early respiratory death. The same group of investigators indicated that patients with fat embolization appeared to demonstrate an anemia within the first two or three days following the initial trauma. One factor to explain this anemia was thought to be due to the interstitial pulmonary blood extravasation secondary to the chemical insults. These investigators indicated that there was little doubt that the mortality and the morbidity of clinical fat embolization was primarily dependent upon its pulmonary manifestations. Other investigators have now stressed the importance of adequate replacement of blood volume deficits in an attempt to prevent the occurrence of lethal cases of fat embolism.[4]

Clinically, the symptoms develop within 72 hours and fall into two groups, those of pulmonary and cerebral origin. Most usually the majority of patients exhibit features of both pulmonary and cerebral dysfunction. The predominantly cerebral symptoms occurring in patients consist of restlessness, confusion, stupor and coma. Pulmonary symptoms encountered in these patients are those of tachypnea and dyspnea. The petechiae, noted on the second day, are present in at least 50% of the patients and will be encountered over the thorax and in the conjunctiva. Petechiae are considered to be microinfarcts apparently produced by capillary endothelial damage resulting from dispersal of fatty acids and platelet aggregates. Most authors consider that disseminated intravascular coagulation is a major cause of petechiae and thrombocytopenia may also play a role in the formation of these discolorations. Funduscopic studies may be utilized to confirm the presence of fat emboli when they are present in the retinal vessels.

Thoracic radiographic studies are of definite help in establishing a diagnosis of fat embolism and these may demonstrate diffuse fluffy infiltrations appearing as fine stippled shadows throughout both lung fields. It must be stressed that because of the associated fractures, most of the film studies employed are completed utilizing portable x-ray apparatus because of the severity of the illness. While these film studies do not provide the greatest detail, the demonstration of the widespread opacities is effective in considering the diagnosis. The arterial blood studies will demonstrate evidences of a respiratory alkalosis associated with hyperventilation demonstrating a low arterial oxygen tension and a low arterial carbon dioxide tension. Most of the patients with the fat embolism syndrome demonstrate a reduction in the hemoglobin and hematocrit due to loss of blood at the site of trauma, evidences of mild intrapulmonary hemorrhage, transient mechanical hemolytic components and the possibility of an associated disseminated intravascular coagulopathy should also be considered. Thrombocytopenia apparently occurs on the same basis. Because of the interaction between fatty acids and calcium, the calcium values may be diminished.

It is suggested that all patients with long bone fractures or multiple fractures involving one long bone or multiple fractures in pelvic fractures should be evaluated for the life threatening complications associated with fat embolism. It is important to complete daily radiographic studies of the lungs for 72 hours subsequently, following the initial base line study. Thereafter, films should be made to appraise the response to treatment.

The correction of arterial hypoxemia represents one of the most important aspects of the treatment of the fat embolism syndrome. Whatever method is necessary to raise the arterial tension above 60 mm. of mercury should be utilized. The administration of corticosteroids has been advocated to block the chemical inflammation associated with the breakdown of neutral fat into free fatty acids. Corticosteroids should be given in a high dosage ranging from 600 to 1600 mg/24 hours in divided doses. One group has recommended the delivery of corticosteroids in the form of methylprednisolone sodium succinate.[2] Transfusions may be necessary to replace blood. While heparin, 5,000 units given every 4 hours intravenously, has a chylolytic effect and a lipase activating action, promoting hydrolysis of neutral fat, it may also aid in the reduction of intravascular aggregates in the pulmonary microcirculation and in cases in which there has been a complicated disseminated intravascular coagulopathy. Nevertheless, heparin must be used cautiously in long bone fractures because of the risk of additional bleeding into the traumatized segments of the involved extremity or organ.[2]

It must be stressed that fat embolism syndrome is a catastrophic complication of long bone fractures and in the aged will be associated with a high incidence of fatal outcome.

The mortality and morbidity of clinical fat embolism are apparently a direct result of the pulmonary manifestations. It is important that therapy be directed to the control of these pulmonary changes utilizing increased oxygen concentrations, positive end-expiratory pressures, and corticosteroids, all of which have shown promise in the therapy of this condition. The accumulated experimental evidence indicates that control of the toxic effects of the free fatty acids and the elaboration of mechanisms to protect the pulmonary capillary beds, can greatly aid in combatting the adverse reaction of the fat embolism syndrome. It must be emphasized that the occurrence of this syndrome in association with long bone fractures and fractures of the pelvis be kept in mind if we are to monitor, treat and reduce this complication of trauma.

ROBERT M. LOWMAN, M.D., ALLAN L. TOOLE, M.D., AND HAROLD STERN, M.D.

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Eosinophilic Leukemia

Arguments concerning the validity of the diagnosis of eosinophilic leukemia have raged since its original description over 60 years ago.[1] Critical analyses of these cases reported to date have led to the predominant opinion that eosinophilic leukemia is a form of malignant myeloid disease but that there is considerable overlap with a great variety of hypereosinophilic disorders.[2 3] The major manifestations of this form of leukemia are progressive hepatosplenomegaly, generalized lymphadenopathy, immature eosinophilic leukocytosis, anemia, thrombocytopenia and generalized tissue infiltration. About half the patients reported have had a low leukocyte alkaline phosphatase score and only one has been reported with the Philadelphia chromosome.[4] Peculiar to this form of leukemia is its rapid progression with frequent blastic termination, its resistance to usual forms of chemotherapy, high frequency of vascular thromboses, mural thrombi, myocardial fibrosis, central nervous system complications, and pulmonary infiltrates. Some patients have exhibited increased frequency of bacterial infections which may reflect the diminished phagocytic and bactericidal activities of the eosinophil. No good explanation has been given for the high frequency of vascular thromboses in eosinophilic leukemia.

The case report by Drs. Grant, Horowitz and Lazarevic in this issue of *Connecticut Medicine* emphasizes two features of eosinophilic leukemia. The first is the relatively rare occurrence of myelofibrosis. It is rather surprising that this complication is not seen more frequently since small vessel thromboses and fibrosis of other tissues are common. Busulfan is thought to contribute to reticulin fibrosis of the marrow in patients which chronic myelogenous leukemia, but busulfan was not responsible in this instance. It is quite likely that myelofibrosis would be detected in the marrow of most patients with eosinophilic leukemia at some stage in its course if it was carefully searched for. The second feature reported was the favorable response to dibromomannitol. It is difficult to generate much enthusiasm regarding this form of therapy, however, since the duration of life following the institution of dibromomannitol therapy probably was no more than one year. Another modality of therapy with considerable theoretical potential is corticosteroid because of its eosinophilic effect. Although the total white count falls in response to corticosteroid the differential usually shows only modest change and the overall course of the disease is unaltered. The antifilarial drug, diethylcarbamazine, which is used in the therapy of tropical eosinophilia has been used without success in the treatment of eosinophilic leukemia based on the assumption that microfilarial infection might play a role.[5] At this time it is fair to say that no very effective form of therapy for eosinophilic leukemia has been developed.

The report by Grant and his associates provides us with further evidence concerning the possible role of an altered component of the immune mechansim in the development of neoplasia. Careful analysis of other hypereosinophilic disorder and eosinophilic leukemia case reports may help to provide more of the important missing links.

Stuart C. Finch, M.D.

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Negative Aspects of Sickle Cell Screening

In this issue of *Connecticut Medicine*, Rutkow and Lipton concisely and quite completely review many of the recently recognized problems associated with mass sickle cell anemia testing (SCAT) programs. The authors touch base on such things as (a) bias in gene frequency, (b) socio-economic problems related to SA genes, (c) poor lay knowledge of the disease, (d) skepticism of blacks regarding the motives of whites involved in testing and (e) failures in genetic counseling. Not mentioned are the problems which arise in relationship to disproving paternity. Some of their new contributions based on a survey include (a) the erroneous estimations of gene frequency due to retesting of SA children, (b) desire of state and community health departments to abandon mass screening, and (c) the fact that high school students are the best informed of all age groups regarding sickle cell disease. The authors conclude with a strong recommendation for discontinuation of current SCAT programs with eventual refocus on high school student population when effective prevention and/or therapy of sickle cell anemia are available. For the present they favor voluntary screening programs.

Although Rutkow and Lipton may have overstated to some extent the case for discontinuation of SCAT programs they present some very potent arguments. It seems quite clear that the millions spent annually in screening may do little good and probably would be much better spent in research on prevention and therapy. This entire situation is another glaring example of the waste and harm that may result from the interjection of politics into medicine.

Stuart C. Finch, M.D.

EDITOR'S NOTE: In the February issue of the Journal we criticized an assessment of $500. made by the medical staff of the Maimonidis Hospital in New York City to pay for some programs in the hospital, such payment being made a condition for hospital privileges. Since then, after protests by the local medical society and by the AMA that such an assessment was unethical, the staff rescinded the requirement and returned any money paid. Donations are now voluntary.

Reflections from the Dean's Office

Robert U. Massey, M.D.

A candidate for faculty appointment recently told me that he thought the final battle against bureaucratic control of health care would be fought and won by the community hospital. I asked him what he meant by this. He said that when the community hospital can provide humane, acceptable, and totally reliable medical care at a reasonable cost, the battle will be over. There will be no remaining source of energy to maintain the bureaucracy in its efforts to cheapen, alter, and control the process of providing medical services.

I believe he is right. The threat of control will vanish when administrators, physicians and other health professionals, trustees, and insurance companies work together to provide what the public, in its quest for health services, ought to expect, indeed has every right to require: thoroughness, reliability, competence, concern, and efficiency.

We would not expect less of an airline pilot. That being a physician or managing a hospital or clinic is more complicated than flying a 747 may be true, but it probably could be argued. I suspect the number of definable tasks might be greater in providing medical care than in running a major air service or flying an airliner, but I doubt that the number differs by an order of magnitude, or that the intelligence and skill which must be brought to bear on the problems is remarkably different.

I do not want to extend this analogy further because it may not be useful and could offend some of my pilot and physician friends. There are and have always been lessons we could learn from each other.

The simple point is that government or bureaucratic controls seem always to extend into those areas of our lives where thoughtful and influential people can persuade enough of the voters that we are making a mess of things. The very evident solution is always that government could do the job better either by increasing its control or by doing it itself. This seems to be a persisting point of view although there has been precious little evidence in 1,500 years of European and American history that it is true.

There is also little to be gained in decrying the inefficiencies, inequities, incompetences, and stifling mediocrity of bureaucracy. Everybody knows about it and no one has come up with a satisfactory alternative.

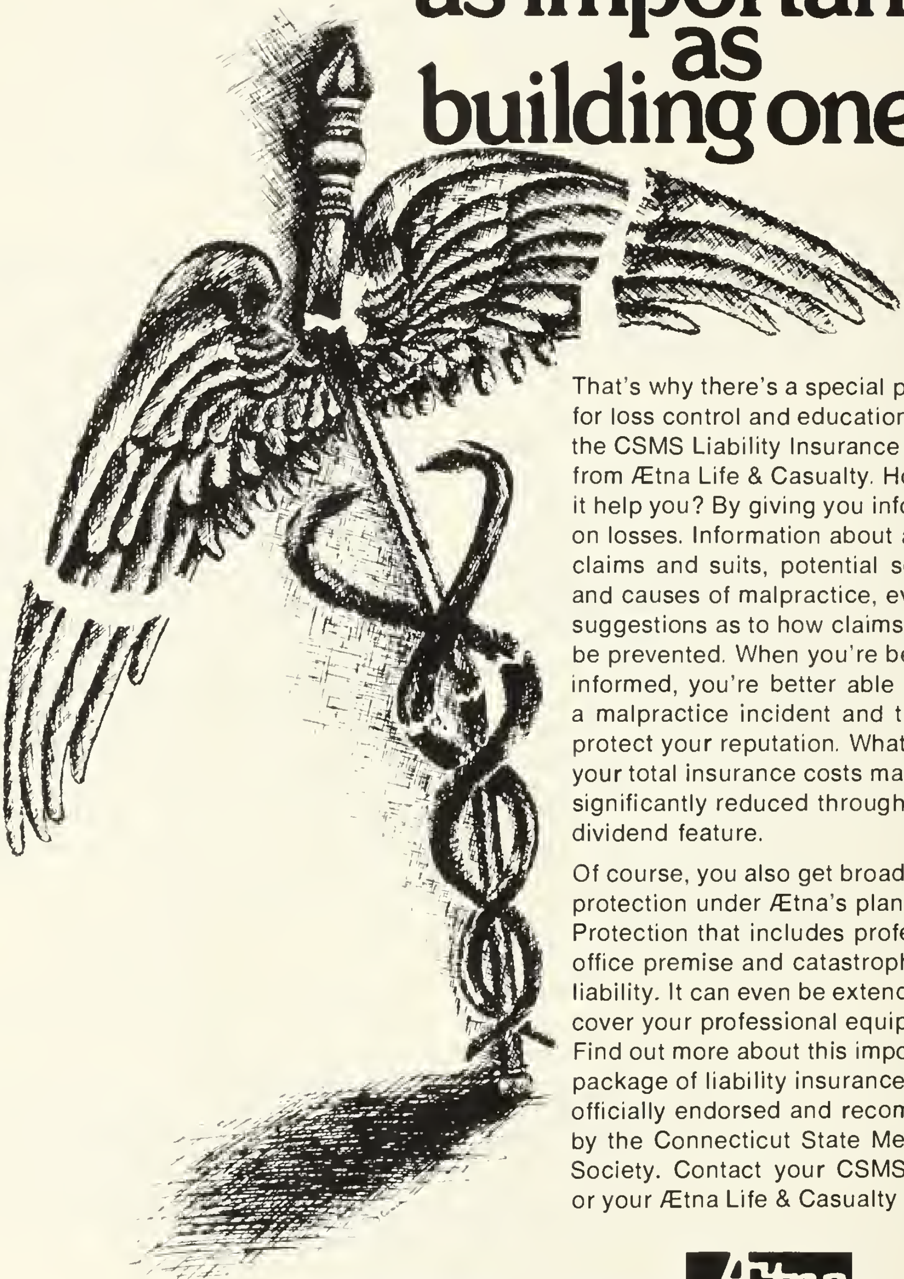
I am suggesting that bureaucracy, since it cannot be successfully fought or noticeably improved, can sometimes be avoided. Although medicine and hospitals are far gone in the direction of bureaucratic control, we who are responsible can avoid further entanglement by paying close attention to those sins of omission and commission which are certain to bring on the judgment. We ought to have been doing all of this anyway.

In Hartford and in the surrounding towns the developing Hospital Consortium represents a major step in the direction of self control, for in one action it brings together all of the elements of a complex three dimensional system. In one dimension, the hospitals themselves, general, special, and university, have come together as a cooperating system of institutions. In another, those who must make the system work: physicians, administrators, and trustees have begun to make major decisions together. And finally the three classical elements of any professional endeavor: education, service, and research are entering into the matrix as a third dimension.

We in the Capital Region have watched this concept grow slowly from tentative discussions which began a decade ago. As the University of Connecticut Health Center became a reality, it was seen as an important element in a "planetary system" of health services, research, and education, and talk about that began as early as 1967-68. The Consortium as a corporate entity does not yet exist, but many of us are behaving as if it did.

Hospital administrators, physicians, medical educators from outside the state, hearing of the consortium and the plans for it, have recognized that this is indeed something new under the sun; that it may be the preventive to bureaucracy that we have sought. More importantly, if the noble experiment succeeds, the quality of medical care in Connecticut's capitol region just might be, by 1984, the best in the world.

ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.



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Status and Trends of the NIH Extramural Research Support Program

Robert S. Stone, M.D.

This is a welcome opportunity to discuss with the academic biomedical research community an important matter of mutual interest — the present condition of and the prognosis for biomedical research support.

As a recently expunged medical school dean, I am well aware of the absolute necessity within the academic health center for an adequate research program that preserves and fosters an essential balance with teaching and service. Having come from a small institution, it is equally clear to me that the difficulties of financing teaching and service activities leave the cupboard rather bare for research insofar as its support from non-Federal sources is concerned. Deans, department chairmen, and other administrators know well that the mature medical centers (of whatever size) have become heavily dependent on Federal — mostly NIH — research awards, to the degree that their autonomy in choosing the most appropriate subjects and modes of research activity, from their point of view, is often uncomfortably limited. The immature institutions find difficulty attaining critical mass in particular research fields.

Of course, the rationale for the Federal support of biomedical research is not *primarily* the strengthening and balancing of medical institutions, laudable as this might seem to many who are directly affected. The first-order Federal imperative is the solving of problems of human disease: prevention, or diagnosis, therapy, and rehabilitation. As a consequence, the Federal health research establishment must search continuously for more effective and efficient ways to use the funds available for these purposes. The critical balance issues discussed here relate mostly to allocation of resources between short- and long-term goals, within the total available for biomedical research. External balance issues relate to allocation of resources within all federally supported science research and development, or within science totally.

In recent years efforts to find improved strategies for attacking health problems have resulted in application of more of the available funds to structured research programs that approach complex problems in coordinated, planned, organized, usually multidisciplinary ways. NIH has called these broad support programs "centers," "program projects," "resources," and "institutes." These organizational units have the common characteristic of the commitment of a significant portion of the grantee institution's resources in terms of skilled scientific, technical, and management staff, physical space, equipment, and administration's program interest. In the process, the relative priorities and opportunities for progress toward self-chosen goals of individual faculty members, as well as the relationships between members of the faculty and the administration, might well be deliberately or inadvertently influenced to a considerable degree. Thus the program management decisions manifest from NIH are likely to have profound effects on the internal affairs of medical centers as well as on their public stature and image.

It has been the predictable judgment of NIH leaders that progress toward the prevention, amelioration, or cure of diseases of man required a judicious combination of programs in various fields of investigation and through several mechanisms of support. The individual research project grant, termed "regular" or "traditional," has been the mainstay of NIH extramural research activities since its origin in the National Cancer Institute in 1937. It is still primary; and the current intent is that this mode of encouraging and supporting the individual researcher, whose original ideas and plans are approved by his peers, shall continue to be the major support mechanism.

At the same time, many who have influenced the pluralistic decision-making process have asserted that some kinds of pressing problems of biomedical research and human health are ripe for a planned and structured attack. The program project and center grants, collaborative programs, and research contracts offer promise of orderly progress toward agreed-upon goals. Making wise choices along this spectrum of increasingly focused program mechanisms is the responsibility of the entire

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DR. ROBERT S. STONE, Director, National Institutes of Health, Bethesda, Maryland. Dr. Stone was appointed Director of the NIH last summer. He had been Dean of the University of New Mexico's School of Medicine since 1968 (He was Chairman of Pathology) before that), and had just completed a sabbatical year at the Alfred P. Sloan School of Management at the Massachusetts Institute of Technology.

decision-making and resource-allocating process, including NIH program management and the researchers and administrators within the grantee community. This responsibility is exercised judiciously with the wise guidance of the Advisory Councils and other experienced and dedicated advisory groups. But certainly this has not been a closed system, and influences from larger systems have at times intruded or dominated.

The evolving NIH patterns of research support present a variety of opportunities as well as problems to institutions and to NIH itself. Our highest order of concern must be that funds flow toward good ideas and capable researchers wherever they can be found. These ideas and researchers, however, must be evaluated in the light of the entire NIH mission.

We must make it possible for the little known investigator and the developing institution to receive support. Yet we must also continue to look to the established institutions, with their larger facilities of experienced researchers, to undertake assaults on many of the multifactorial, heretofore intractable problems. As a consequence of the latter policy, it appears from some viewpoints that the good get better and the lesser-established are undersupported.

NIH data illuminate the past effects of the growth of broad programs on grantee institutions. The following graphs illustrate some of these relationships over time and may help us to gain a common, more encompassing perspective.

NIH EXTRAMURAL RESEARCH PROGRAM AWARDS IN ACTUAL AND CONSTANT DOLLARS, FY 1967-1974 EST.

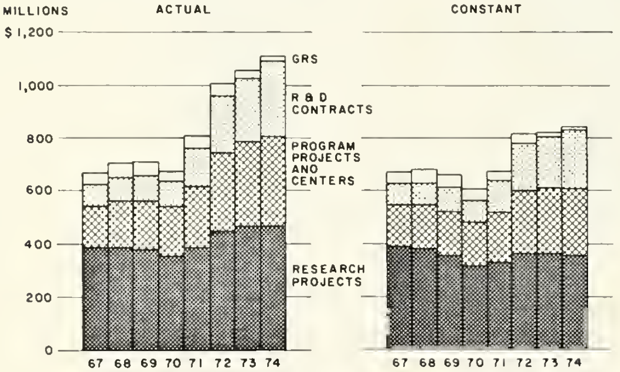

Chart 1

The first chart shows the dollar amounts obligated for NIH extramural research programs in actual and in constant dollars for fiscal years 1967 to 1974 (estimated). Although the actual dollars increased by more than 60 percent, it is evident that the real increase in buying power, as measured by applying the GNP deflators, was but a third as much, or about 20 percent.

It is also apparent that the expansion achieved was in the areas of research and development contracts and of program project and center grants. This is especially observable when examined in terms of constant dollars, in which the level of support for regular research grants shows a decline.

NIH EXTRAMURAL RESEARCH PROGRAM AWARDS BY GROUPED INSTITUTES
FY 1967-1974 EST.

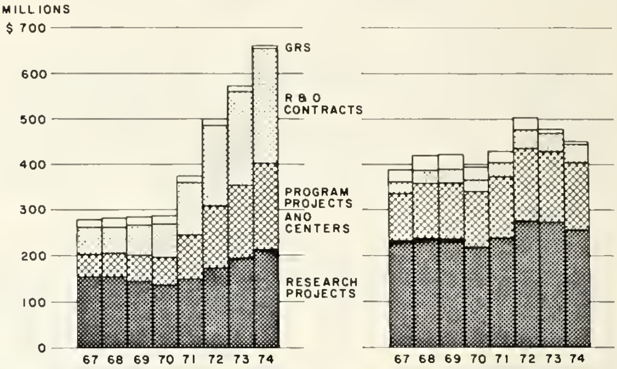

Chart 2

These differential effects are seen from Chart 2 to have been primarily related during the past four years to the awards made by three of the Institutes: Cancer, Heart and Lung, and Child Health and Human Development. The steep increases, especially in terms of R and D contracts and of program project and center grants, account for virtually all of the NIH increases during this period. In fact, during the past three years, the extramural research programs of the rest of the Institutes and Research Divisions have declined by 10 percent.

PERCENTAGE DISTRIBUTION OF NIH EXTRAMURAL RESEARCH PROGRAM AWARDS BY GROUPED INSTITUTES, FY 1967-1974 EST.

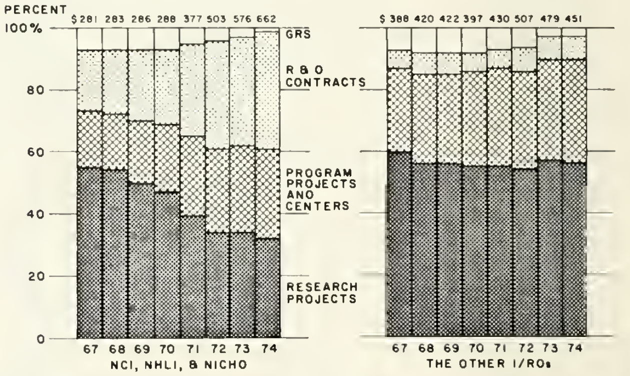

Chart 3

These effects are further delineated in the Chart 3, which shows the percentage distribution of the same data by grouped Institutes. On the left the obligations for Cancer, Heart, and Child Health show the increasing proportions of R and D contracts and program projects and centers accompanied by simultaneous decreases in regular research grants. The actual dollar support is shown in millions at the tops of the bars.

For the group of seven Institutes whose overall program support has not increased (Arthritis, Allergy, Dental, Neurology, General Medical Sciences, Eye, and Environmental Health Sciences), we see that the proportion of traditional research grants has remained constant at a much higher level, and R and D contracts have received a considerably smaller proportion of available funds.

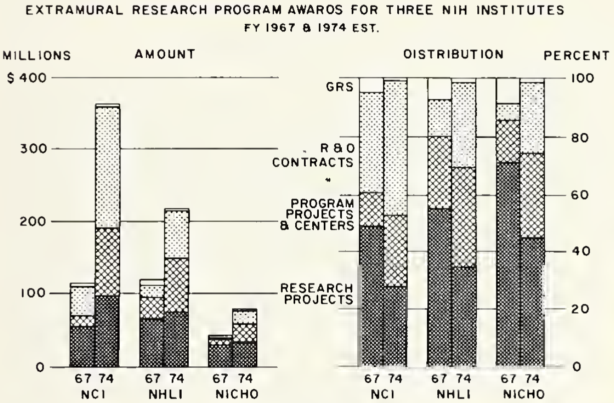

Chart 4

Chart 4 illustrates the awards of Cancer, Heart, and Child Health individually, by type of support, for the two years 1967 and 1974 (estimated). The aggregate increases for each of these Institutes are striking. Even more so are the proportionate decreases in regular research grants and increases in R and D contracts and program project and center grants for each Institute.

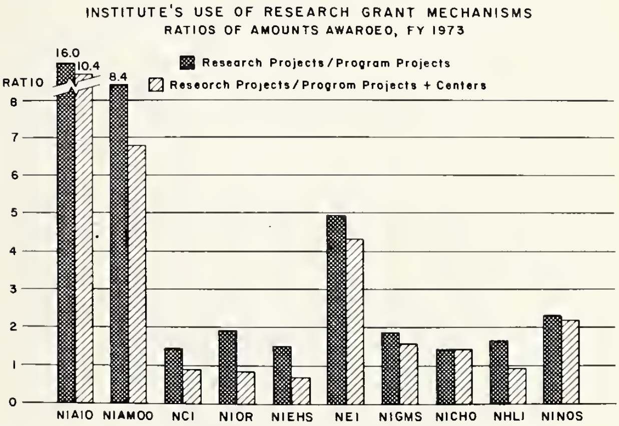

Chart 5

Chart 5 shows the differing extent to which the ten NIH Institutes use regular research project grants as compared with the large grant mechanisms — that is, program projects or program projects plus centers. The graph presents the ratios among these mechanisms. The Allergy, Arthritis, and Eye Institutes, as compared with the others, have maintained a several-fold higher ratio of regular project grants to large grants.

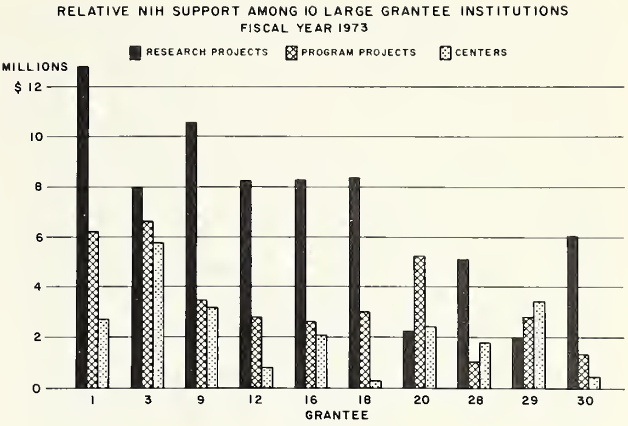

Chart 6

Chart 6 presents a picture of the diversity among ten representative grantee institutions (number-coded along the x axis) in terms of their receipt of the three principal types of NIH grants. These ten grantees are among the thirty who currently receive the most NIH research grant support (between $7 million and $21 million). Nine of these include a medical school as the chief or sole component. Although eight of the ten receive larger amounts of regular project grants than of program project or center grants, the variation among them is considerable — up to 30-fold in one case.

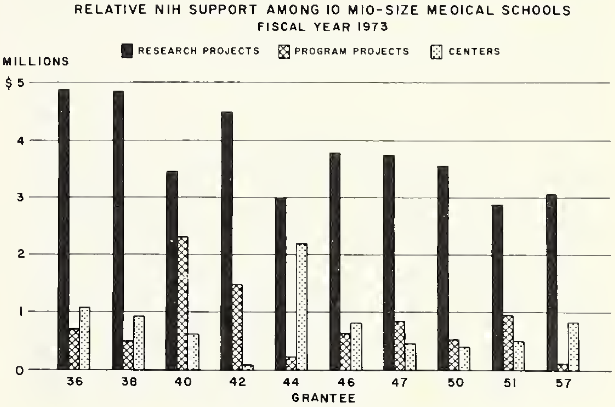

Chart 7

Similar diversity among ten mid-size medical school grantees is shown in the Chart 7. Total NIH research grant support in these schools ranges from about $4 million to $7 million. The bulk of the support in each case is in traditional project grant form, but the acceptance and use of program project and center grants, while nearly negligible in some, is substantial in others.

These data would be of even greater interest if presented in terms of medical *centers* rather than medical schools or universities. Interest in the medical centers has grown with our increasing awareness of their essential interlocked relationships among medical education, postdoctoral training, and health care services. Unfortunately, a generally accepted definition of organizational or even fiscal boundaries of these centers has not yet been achieved, either by the NIH, the AAMC, or other interested bodies. The difficulty lies in the diversity of the medical centers. They vary widely in organizational structure, in relationships with affiliated hospitals, and in degree of autonomy within the parent academic institution. The relationships between the medical schools and their teaching hospitals is especially diverse, with school-hospital groups ranging from essentially single organizations, through legally separate but closely affiliated dean's committee hospitals, through independent hospitals offering cooperative opportunities for research and training, to hospitals maintaining research and training relationships with two or more medical schools.

The data just presented were collected by the NIH Division of Research Grants from the individual awards for all kinds of research grants made by the NIH Institutes and Division of Research Resources. Because of limitations of the data, identified institutions are not fully equivalent or comparable in some cases. The essential research and intellectual unity of some medical school-hospital complexes that were necessarily considered by the NIH data collection system to be separate grantee entities is acknowledged. Our data analysts are engaged in refining the characterization of the actual medical research communities with which we deal.

The reasons for such great institutional variability are not clear to NIH program officers. In fact, these data are sufficiently puzzling and challenging that NIH has set up a "Center Grants Task Force" composed of staff of the scientific program and the grants management groups to study these matters and to learn about opinions and effects among grantee institutions. We hope to understand through study of NIH awards data and the practices of the Institutes, and especially through discussions with grantee scientists and administrative persons, how these different grant mechanisms affect institutions. We want to appreciate how NIH research support mechanisms are perceived by grantee personnel with different responsibilities and therefore different viewpoints, and why some grantees apparently view these mechanisms differently from others. We want to know what these program mechanisms do *to* as well as *for* the NIH grantee community at different system levels.

Even while we at NIH are wrestling with these complex decisions regarding balances among our programs, we are also engaging in a series of important and challenging exercises concerning the means to implement those programs and to learn how to deal more effectively with you of the external research communities. Last December a number of suggestions from both inside and outside NIH led my predecessor, Dr. Robert Marston, to appoint a committee of senior NIH staff to take a careful look at the development and administration of NIH programs.

The committee was asked to examine particularly the processes for selection and implementation of these programs and the projects within them. This Program Mechanisms Committee, as it was known, was most effectively chaired by Dr. Theodore Cooper, Director of the National Heart and Lung Institute. The members focused attention on some of the issues I mentioned earlier as they had been reviewed and analyzed in previous reports as well as in their present contexts. The committee discussed these ideas within its own circle and called on other sources for suggestions, including members of NIH and the academic and industrial communities.

Last February the committee made its report, which included a number of recommendations aimed at solving certain problems we see at NIH. Currently under intensive staff study, those that seem favorable will be developed into NIH policies and procedures. Some of the proposals will undeniably have an effect on relations between NIH and outside research communities and, as noted above, have been discussed with appropriate community representatives. The impact of others on extramural performers is still under study and cannot be precisely calculated at this time.

I do want to assure you, however, that any changes resulting from their implementation will reflect our continuing desire to maintain and enhance the longstanding cooperative relationships between NIH and you of the scientific communities. I am sure that the steps we eventually take, both in choosing the directions for our programs and in implementing them through improved policies and procedures, will continue to serve both NIH and the performer communities in achieving program goals. Such steps will surely further our mutual endeavors to solve problems concerning the health of the people of this country.

From the National Institutes of Health*
1973 IN REVIEW
Research Highlights

During 1973, the National Institutes of Health continued its broad support of the scientific research designed to solve America's health problems.

Virus Research

One of the most important research accomplishments toward that goal was the identification by National Institute of Allergy and Infectious Diseases scientists of the virus that may cause infectious hepatitis. The causative agent for infectious hepatitis, one of the most important known infectious diseases, has long eluded science. The successful identification of the virus is expected to aid greatly in the study, understanding, and diagnosis of the disease and may also contribute to the development of a vaccine or other preventive measure.

National Institute of Allergy and Infectious Diseases scientists also may have found the elusive virus that causes human serum hepatitis. They report evidence that the agent which causes this disease contains nucleic acid, the genetic material for many viruses and other organisms. This is the first clue that the agent has one of the most important attributes of a conventional virus.

In related hepatitis research, the NIH's Clinical Center reported a five-fold decrease in hepatitis following surgery due to the exclusive use of blood from voluntary donors who had been tested for the hepatitis-associated antigen believed to be part of the hepatitis virus.

Heart Disease and Hypertension

In an attempt to expand the research effort toward the prevention, diagnosis, and treatment of another of America's major health problems, the National Heart and Lung Institute presented an expanded national plan attacking heart, blood vessel, lung, and blood diseases. Also, the National High Blood Pressure Education Program established the National High Blood Pressure Information Center within the National Heart and Lung Institute to act as a clearinghouse for scientific information on hypertension and to serve as a reference for public and professional inquiries.

Robert S. Stone, M.D., Director, National Institutes of Health.

On the research side of the hypertension program, National Heart and Lung Institute grantees at Georgetown University found that a personalized program of medical care reached inner city residents and brought about dramatic results in hypertension control. The program of detection and long-term, personalized follow-up encouraged the patients to come back and kept their hypertension under control.

A device developed by the NIH's Division of Computer Research and Technology also aids cardiac patients, especially those with pacemakers. It allows them to transmit their electrocardiograms across telephone lines from their homes instead of traveling to a physician's office.

Cancer

During 1973, the National Cancer Institute presented its intensive plan for a five-year attack on cancer and announced its seven objectives. The research and cancer control areas to receive high priority are: cause and prevention, detection and diagnosis, treatment, and rehabilitation.

The "smart sphere" technique, a new method of studying cell membranes, may eventually lead to a new approach to combating cancer. The work, supported by the National Institute of General Medical Sciences, involves the use of microscopic latex spheres whose surfaces are coated with antibodies that instruct them to seek out and attach to specific cells, such as embryonic and tumor cells.

The National Institute of General Medical Sciences also supported the development of an ultrasonic camera that displays live television images of internal organs and other soft tissues that are invisible to X-rays. The new camera could prove effective in detecting cancer, heart disease, and movements of the fetus without the danger that accompanies X-rays.

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*ADDENDUM: Prepared by Dr. Stone after submission of his main article. — Ed.

Diagnosis and Treatment

Much NIH research during the year resulted in more economical methods of diagnosis and treatment.

Grantees of the NIH's Division of Research Resources at the New York State Department of Health developed a new finger prick blood test that provides a simple, reliable, and rapid technique for mass analysis of lead poisoning in children. The test requires only a few drops of blood to analyze lead levels more rapidly and at a lower cost than previous methods.

The cost of medical care and research for Americans also may be lowered by the development of a new, compact and disposable artificial kidney by the National Institute of Arthritis, Metabolism, and Digestive Diseases-supported scientists. The new kidney is 30 percent faster than other artificial kidneys now in use and has the potential for economical home use since it allows the patient to eat, move, and perform chores while undergoing dialysis.

Development of a new method for rapid testing of chemicals for potential cancer-causing ability was reported by the National Cancer Institute. The method, using small embryo cells growing in glass dishes, promises to be an efficient and economical means for screening thousands of environmental substances.

During 1973, other NIH research findings were applied directly to improve existing treatment methods.

Successful employment of enzyme replacement therapy by investigators at the National Institute of Neurological Diseases and Stroke temporarily enhanced deficient enzyme levels in Fabry's disease in two patients. While only about 300 persons in the United States are known to have this rare disorder, it may be possible to treat tens of thousands of others suffering from similar genetic disorders by replacement therapy.

Anesthesiologists at the University of Washington report that a semi-reclining position during dental operations is best for patients because they experience fewer physiological complications and faint less frequently.

National Institute of Dental Research scientists also found that topical application of fluoride is an effective method of reducing dental caries. This finding has important implications in areas not exposed to fluoridated water.

National Institute of Dental Research-supported researchers used the computer during 1973 as an aid in the treatment of orthodontic problems. Skull X-rays, converted into skull outline maps and stored in a computer's memory on punch cards, become the basis for better methods of diagnosis, monitoring, and treating dental and facial problems. Treatments can be tested in a short time and the dentist can simulate years of growth supervision and months of treatment in a few minutes by reproducing the outlines at any time.

Eye Research

The National Eye Institute began testing the Ocusert, a miniature medication dispense inserted into the eye under the lower lid. The device, which allows a constant release of the correct dosage of medication, may be beneficial for treating a wide variety of visual disorders including glaucoma.

The National Eye Institute supported the development of a substitute sight system for the blind that transmits pictorial images via the skin. The Tactile Vision Substitution System includes a miniature television camera worn at the waist or shoulder and a one ounce light-gathering lens attached to the frame of an ordinary pair of glasses. Research continued during 1973 to further develop the system and expand its use to other areas.

Other Research Advances

In other areas of research, National Institute of Allergy and Infectious Diseases grantees reported that infectious mononucleosis, the disease responsible for keeping so many youngsters out of school for long periods of time, may be spread primarily by people who carry the infectious agent in their throats for months after their clinical disease has disappeared. This theory lends support to the idea of an oral route of spread of the disease.

The National Institute of Child Health and Human Development began a program to computer monitor approximately one million births annually to detect and investigate unusual patterns in the occurrence of birth defects. More than 1,500 hospitals across the country will provide data for the study.

The safety of aerosol sprays was questioned in studies supported by the National Institute of Environmental Health Sciences. Investigators found that aerosol propellant gases can be toxic to the heart. They stressed the need to study the possibility of harm to frequent users of aerosol sprays, such as beauticians.

The National Institute of Environmental Health Sciences also investigated the effects of hospital noises on patients and found that noises from hospital incubators, recovery rooms, and acute care units can contribute to deafness and interfere with sleep. Guidelines for keeping down the noise levels in hospitals were developed.

Animal Studies

Animal studies continued to play an important role in research at NIH and NIH-supported institutions.

National Institute of Arthritis, Metabolism, and Digestive Diseases scientists reported on studies of a triple-drug therapy for systemic lupus erythematosis, an inflammatory disease of connective tissue. Administration of the drugs retarded the disease in mice without increasing drug toxicity. These findings may lead to evaluation of similar treatment in humans.

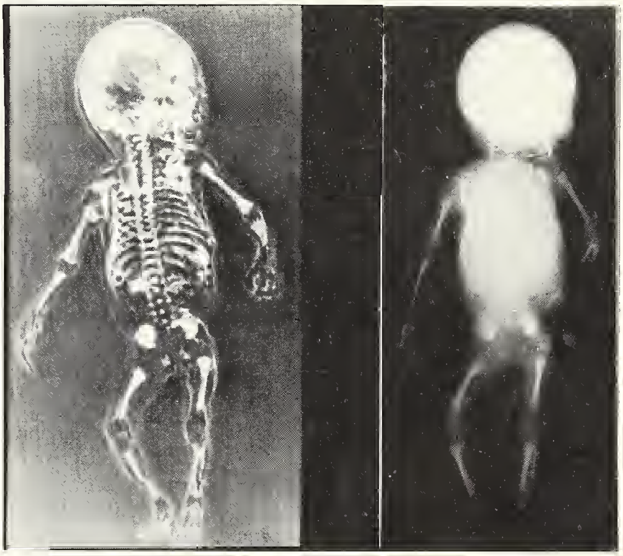
National Institute of Neurological Diseases and Stroke grantees succeeded in transplanting embryonic brain cells in young animals. The transplanted immature cells became functional and were not rejected by the host cell. The results of this work are a highly encouraging step in understanding and correcting brain injury.

The Division of Research Resources reported several advances in the science of primatology from its network of Regional Primate Research Centers. At the Delta Center, Tulane University, chimps were found to practice dentistry, cleaning each other's teeth and extracting bad teeth. At the Yerkes Center, Emory University, a chimp named Lana is learning to talk to a computer, giving evidence that these primates may soon learn to communicate with man.

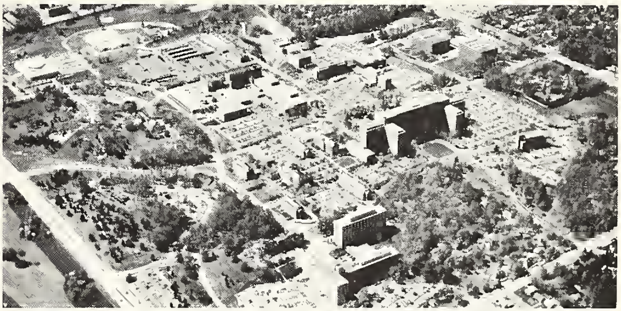
Primates were also used in National Cancer Institute research. The Institute identified three new non-human primate models for human cancers, thus providing new approaches for the diagnosis and treatment of a variety of human cancers.

During 1973, the National Eye Institute began testing the Ocusert, a miniature medication dispenser inserted into the eye under the lower lid.

At the Yerkes Regional Primate Research Center, a chimp named Lana is learning to talk to a computer console.



The ultrasonic camera displays live television images of internal organs and other soft tissues that are invisible to X-rays. The picture of a 17-week-old human fetus on the right was obtained by conventional X-ray method. The picture of the same fetus on the left, was taken with ultrasonic rays.



An aerial view of the National Institutes of Health campus in Bethesda, Maryland.

The National Heart and Lung Institute found that a low-fat, low cholesterol diet reversed atherosclerosis in Rhesus monkeys. These findings might apply to humans.

The National Institute of Dental Research supported animal research at the University of Alabama's Dental Research Institute in Birmingham and found a clue to the rising prevalence of tooth decay in underdeveloped countries. Lack of protein in the diet of rats during pregnancy and nursing resulted in offspring much more susceptible to decay after weaning than offspring of rats given adequate protein in the diet, even when both diets had the same number of calories.

These research accomplishments represent only a few of the significant findings reported during 1973. NIH scientists and grantees also provided new knowledge of the basic sciences — knowledge that is essential for the improvement of health for Americans.

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Perinatal Morbidity and Mortality Committee

Case History and Commentary

William E. Lattanzi, M.D.

This is the first in a series of perinatal case presentations and commentary to be submitted to the Journal, hopefully on a quarterly basis by the Perinatal Morbidity Mortality Committee of the State of Connecticut.

The case material will be actual patients delivered in the State, that are felt by the Committee to represent preventable or probably preventable deaths. The cases selected will be discussed by either members of the Committee or an invited guest.

The purpose of the presentation and commentary will be the dissemination of instructional information to the readers of the Journal.

This month's discussant is Dr. Brian Rigney, Acting Chief of Obstetrics and Gynecology at the Hospital of St. Raphael, New Haven, Conn.

Case History

The patient was a 23-year-old G 1, P O, who was admitted 6 weeks after her EDC. For the preceding 8 weeks, she had been followed at weekly intervals where it was noted that the presenting part remained high, and the cervix closed. The fetal heart remained normal.

On the day of admission to the hospital, she went into spontaneous labor, and was found to have a breech presentation. Pelvimetry was performed and reported as adequate. Labor progressed and the breech slowly progressed downward and hit the pelvic floor. The patient was taken immediately to the delivery room because a significant drop in the fetal heart rate was noted.

The breech was now completely on the pelvic floor, and presented at the vagina. Despite oxygen, the fetal heart did not increase, and with fundal pressure a 7 lb. 4 oz. girl was delivered completely limp. There was no heart beat and despite immediate intubation, and external cardiac massage, there was no response.

The baby had dry skin, and appeared post-mature. The placenta appeared normal. Since there was one gasp, this was considered a neonatal death.

The State Committee on Perinatal Morbidity and Mortality has reviewed this case, and feels the death of the baby was due in part to post-maturity, and also feels that there was not adequate monitoring of the pregnancy in the final 6 weeks.

This is thought to be a preventable death since adequate monitoring would have probably resulted in an earlier delivery and enhanced chances for survival. The following is a statement by Dr. Brian F. Rigney on methods available for monitoring placental health late in the pregnancy.

Comment

Although both the breech presentation and the gestational length of this pregnancy are risk factors, we will concentrate on the latter problem for discussion. Prolonged pregnancy is accepted by the majority of reviewers when more than 294 days (42 weeks) have elapsed since the last menses. Prospective and retrospective studies support a 7-12% incidence of pregnancies progressing beyond this length of gestation. Although debate continues about the significance of prolonged gestation, overall increases in infant morbidity and mortality are generally accepted, with doubling of mortality by 43 weeks — perhaps trebling by 44 weeks. Statistically significant mortality increases in asphyxial deaths, congenital malformations and birth injuries have been noted in one large series. Intrauterine death accounted for half the mortality with post-matures. Young and elderly primigravid women and grandmultiparas seem especially prone to post-mature pregnancies, and fetal outcome is more grave if toxemia supervenes. Mortality of the infant may be seven times neonatal mortality as a whole if the infant is less than 2500 grams at birth and post-mature.

A typical post-mature syndrome infant is dysmature: there is loss of subcutaneous fat; the skin is dry and cracked; meconiun staining is present. Ten to 15% of infants born of prolonged gestation may exhibit this syndrome.

Pre-term management involves careful attention to the quality of preceding mensus, uterine growth rate, time of appearance of fetal motion and auscultable heart beat. If these or other factors do not coincide with gestational age, ultrasonic Biparetal Diameter measurement should be performed, preferably before 32 weeks gestation, to date the pregnancy. These measures allow the obstetrician to avoid the problem of "size/date" disparities that occur not infrequently in practice.

A pregnancy that is at 41½ or 42 weeks presents different problems. If careful prenatal evaluation has been done and certainty of the duration of ges-

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DR. WILLIAM E. LATTANZI, M.D., Chairman, Committee on Perinatal Morbidity Mortality, State of Connecticut.

tation is assured, the pregnancy rapidly enters an ascending neonatal mortality curve. Delivery before jeopardy develops is ideal, yet subjecting the patient to a prolonged induction may not be desirable or feasible if the outcome is a normal infant.

The main objective, until delivery can be accomplished, is to establish and assess fetal well being. The main tools are serial maternal urinary estriol values and amniocenteses.

Single, very low values of estriols indicate need for immediate delivery if amniotic fluid is unobtainable, or greenish and meconium stained. Ideally several estriol values are obtained: ascending curves combined with clear amniotic fluid allow for routine progression of the pregnancy with continuing serial testing. Descending curves of estriol values are indicators for delivery if a drop of 60% or more from initial values has developed. If a low flat curve of estriol values is present, the 60% drop level may be too close to fetal jeopardy to be awaited as an indicator of fetal distress alone. Values below 10 milligrams percent for 24 hours have a high index of association with fetal distress.

Amniocentesis may be necessary to perform serially, and the tap may become more difficult due to aligohydramnious that frequently accompanies postmaturity. Hobbins has commented on the use of B-scan ultrasound to locate pockets of fluid for guided taps. Also, large series have been published on the use of amnioscopy to detect meconium staining of membranes. A slightly dilated cervix is needed for this however, and the incidence of membrane rupture is up to 2% (Saling).

The most recent testing of HPL (human placental lactogen) may indicate correlation as high as 90% between low serial HPL levels and post-maturity. HPL levels of greater than 6 milligrams have not been found to be associated with postmaturity syndrome. Others have found an incidence of up to 70% of fetal perinatal complications with chronic low HPL levels. Current testing of HPL kits for routine use is now being done and studies are continuing to assess the value of HPL in particular high risk syndromes in pregnancy.

Our patient above, has probably unknown dates of gestation and very likely, prolonged gestation as well. Ideally her dates would have been established by repeat confirmation of uterine growth and/or ultrasound. As pregnancy became prolonged, estriol values and amniocentesis would have insured well being or the need for delivery before the time of spontaneous labor. Only if pelvic size by x-ray pelvimetry and infant size by Biparetal Diameter had been compatible with vaginal delivery would this be attempted. Intrapartum monitoring of the fetal EKG pattern is essential in this case. Primary Cesarean section is justified by either large infant size, meconium stained aspirated amniotic fluid, low estriol values, abnormal fetal heart rate patterns, or small pelvic measurements. Any combinations of these indications would be more than the "single complicating factor" in a primiparas breech that has led many obstetricians to recommend an increased rate of Cesarean section in primiparas breech patients.

Brian F. Rigney, M.D.
Clinical Director
Dept. of Obstetrics & Gynecology
The Hospital of St. Raphael

Read Before Writing

Above all learn and know how to read before engaging in writing, and before so producing, understand how to choose and select, for many a time you will be judged by a plain stock-taking of your library, and one will say of you, "I know what you are and what you esteem, for I discern what it is that you read, and what you approve of, enjoy and appreciate."—Edouard Auber, *Library of the Medical Student and of the Medical Practitioner.*

Sexual Counseling in a Community Hospital: A New Program

Carolyn J. Wabrek, M.Ed., and Alan J. Wabrek, M.D.

In July, 1973, a Sexual Counseling Program was started at Hartford Hospital by the authors. This is based on the co-therapy model of using both a male and a female co-therapist to counsel couples with sexual difficulties. The concept of seeing the dysfunctional couple together is important because in many instances the sexual difficulty is specific to one relationship, that is, with other partners the individual may function perfectly well, and the sexual dysfunction only exists with the marital partner.

There are two approaches that may be used to help couples solve their sexual difficulties; and this depends on how the difficulty developed. For example, if a couple was getting along pretty well maritally and sexually for a number of years and then developed marital difficulties which seem to be progressive, it is probably only a matter of time before the effect of the marital deterioration spills over into the bedroom, and a sexual difficulty develops. Counseling for these couples would primarily be aimed at helping them improve their marital relationship, and as this occurred, the sexual problem would solve itself. In other instances, the sexual difficulties appear to be much more primary; that is, sex was never particularly good for them from the earliest stages of their relationship. Even though their marital relationship is O.K., their sexual relationship definitely needs improving. In the latter instance, directive sexual counseling and not marital counseling is the main thrust to alleviate the problem.

What kinds of sexual problems do couples have, and present to counselors with:

Premature Ejaculation is the most common male sexual dysfunction. It is important to understand that prematurity is a relative term and the male's concept of this may be vastly different than the female's concept. For example, if a male is able to have intercourse for ten minutes before ejaculating he may perceive of himself as a sexual athlete with absolutely no problem of premature ejaculation. In some instances the female partner may say " . . . but if only he could hold out for another minute, I'm sure I would have an orgasm." As she sees it, he ejaculates too quickly for her although in a stricter sense, he does not have premature ejaculation. Usually the male with premature ejaculation will ejaculate prior to entry into the vagina or during the first few thrusts.

Impotence, the second most common male sexual dysfunction is a difficulty either getting or maintaining an erection for intercourse. The reason *for intercourse* is stressed is that most of these males can, and do, get an erection at other times but when they want to have intercourse something blocks either the obtaining or the maintaining of the erection. That something is fear, and in most cases is related to a fear of "will I get an erection again, or will I be able to sexually satisfy my partner."

Ejaculatory Incompetence, the third male sexual dysfunction, is an inability to ejaculate into the vagina. In most of these cases the male is able to ejaculate if he masturbates himself. Anatomically and physiologically, he functions O.K. The underlying dynamic as to why he is unable to ejaculate into the vagina is usually related either to a fear of impregnating — with its possible harmful effects on the female — or a fear of producing progeny that will have his undesirable characteristics and traits.

Orgasmic Difficulties, are the most common female dysfunction. It is important to be very specific here by asking a female; does she or has she masturbated, and if so, has she ever had a climax this way? Also what are her feelings about oral sex, and if she does have oral sex, has she ever had a climax this way? The last question is, has she ever had an orgasm during intercourse. In many instances a woman has had orgasms but feels that she is frigid because she has not had an orgasm during intercourse. The concept of frigidity is unfortunate because it implies a total body construct and equates orgasms during intercourse with womanhood.

Dyspareunia is painful intercourse, and is a relatively common cause of sexual dysfunction or possibly of a woman becoming non-orgasmic. It is mandatory that a thorough gynecological examination be done to rule out organic etiologies. Once organic factors have been ruled out the functional or relationship dyspareunia may be considered. One of the most common causes is insufficient vaginal lubri-

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CAROLYN J. WABREK, is a Ph.D. candidate in Human Sexuality, Marriage, and The Family; New York University, and a Consultant in Human Sexuality at Hartford Hospital, Hartford, Conn.

ALAN J. WABREK, M.D., is an Assistant Professor of Obstetrics/Gynecology at the University of Connecticut, and Director of Sexual Therapy, Dept. of Obstetrics/Gynecology, Hartford Hospital, Hartford, Conn.

cation. This may reflect a woman's feelings about the status of her relationship or her feelings about herself as a woman or as a sexual partner. In some instances, insufficient vaginal lubrication simply reflects intercourse being commenced before she is ready.

Vaginismus is an involuntary spasm of the muscles around the opening of the vagina, making penetration by the penus impossible. It is responsible for the fast majority of unconsumated marriages, and, in time, if penetration is repeatedly unsuccessful, the male may become impotent. It is also important to realize that vaginismus may occur secondary to sexual trauma, or dyspareunia. When intercourse becomes very painful, the involuntary spasm of the muscles serves as a protective function.

Even though the sexual dysfunctions have been presented as being either male or female, the importance of the "uninvolved" partner cannot be stressed too strongly. For example, if a male ejaculates very quickly it may be virtually impossible for the female to have an orgasm during intercourse and even though she presents in the physician's office with this difficulty, the physician needs to find out about the male sexual functioning. Likewise, if a female is non-orgasmic during intercourse, and particularly if she does not enjoy sex and looks upon it as a duty, she may explicitly encourage the male to ejaculate quickly and hurry up to get it over with.

While sexual counseling programs are rapidly increasing in number across the country, many of these are based at medical schools, and to the best of our knowledge, Hartford Hospital is one of the few community hospitals in the country to provide such a service. There is also a sexual counseling program at Yale University, and to the best of our knowledge, that is the only other one in the State of Connecticut. One reason for the dearth of sexual counseling programs in the past has been the virtual neglect of sex education in medical schools for many years. As recently as 1960, only a very few medical schools had any formalized course in human sexuality. This proved to be quite a discrepancy because a number of patients' complaints and illnesses had marital and sexual implication, if not origins. To help meet the patient need, a Center for the Study of Sex Education in Medicine was founded in 1968, based at the University of Pennsylvania in the Department of Psychiatry. The senior author (AJW) was on the staff of the Center for two years; its function was to develop sex education programs in the medical schools across the country. With a large grant from the Commonwealth Fund much of the previous neglect has been rectified, and at the present time, the vast majority of medical schools in the United States have formalized classes in human sexuality for the students. These courses, plus formalized training programs in counseling, will make it easier for physicians to receive training in this area and to better help them meet their patients' needs.

DISCUSSION OF MEDICAL FACTS WITH PATIENT'S LAWYER

Patient's history, diagnosis, treatment and prognosis may be discussed with patient's lawyer with consent of the patient. The Principles of Medical Ethics recognize in Section 10 that the physician has obligations to society as a whole in addition to his obligations to his patient as an individual. In many instances, the peculiar knowledge and attainments of the physician are indispensable to patients or others in the administration of business and government and in the usual conduct of certain daily affairs. When this knowledge, acquired during the course of the physician-patient relationship, is necessary to enable the patient to obtain his just due the physician should make it available for patient's benefit under proper conditions. Discussion with or report to the patient's attorney may be proper and necessary in order for patient to perfect a claim. The attending physician may ethically discuss patient's history, etc. with the attorney providing, of course, patient has consented to the discussion. — *Opinions and Reports, Judicial Council of the A.M.A.*

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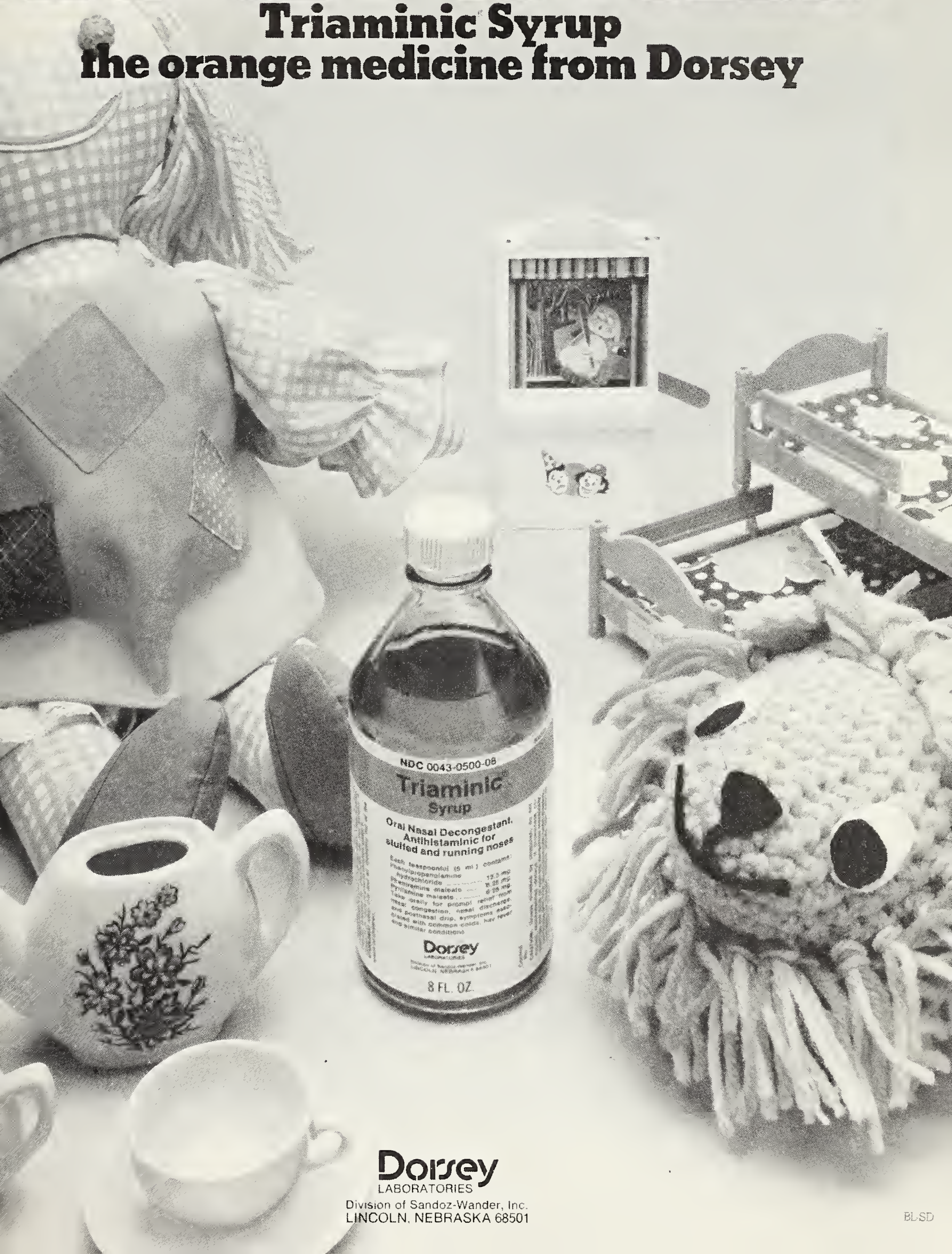

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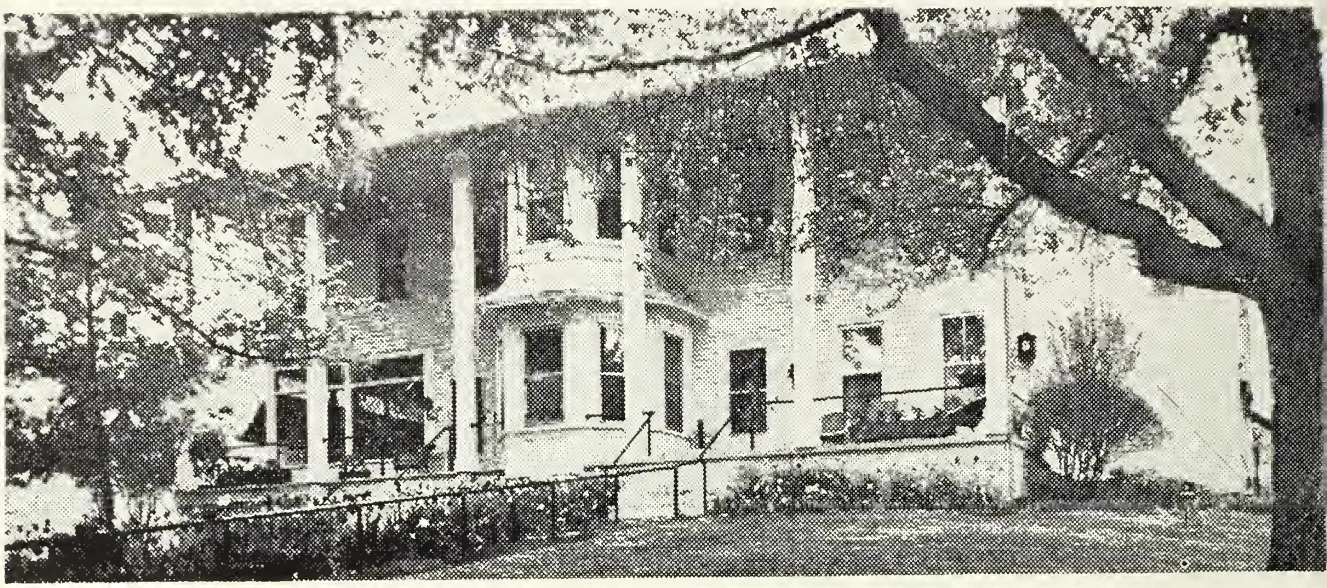

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Some Negative Aspects of Sickle Cell Anemia Screening Programs

(Negative Aspects of Sickle Cell Screening)

Ira M. Rutkow, B.S. and Jeffrey M. Lipton, Ph.D.

ABSTRACT — This investigation discusses some of the controversial issues surrounding sickle cell anemia testing (SCAT) programs, and enumerates negative aspects of current programs by analyzing the responses to a mail questionnaire concerning sickle cell anemia and trait sent to participants in a recent screening program, and the State Departments of Health in all fifty states and the District of Columbia.

The negative aspects include the failure to compile reliable statistics for prevalence reports of sickle cell trait in the population, the erroneous impression of sickle cell trait as a personal health hazard, and the black community's low acceptance of the fundamental goals of genetic screening programs.

The conclusion calls for the discontinuation of current mass screening programs with future reinstitution, directed at high school students, when capabilities for either prevention or treatment of sickle cell anemia become available.

Introduction

Sickle cell anemia is an inherited, chronic hemolytic anemia, with an estimated incidence of 1:625 to 1:1111 in the black population of the United States.[1] It is characterized by acute, painful "sickling" crises caused by temporary or permanent vascular occlusion due to the presence of "sickled" erythrocytes. Other less frequent types of crises have also been described.[2] From 6%-10% of the black population are heterozygote carriers of the gene for sickle cell anemia, a condition known as sickle cell trait, and a marriage between two such persons has a one in four chance of producing a child with sickle cell anemia.[3] Many researchers in the field believe the trait to be an essentially benign condition.[4-6] However, the literature abounds with reports of associated morbidity, and at this time much controversy exists over the true nature of sickle cell trait.[7] [8]

History of Sickle Cell Anemia

The clinical entity and the morphological characteristics of the "sickled" erythrocytes were first described by Herrick in 1910.[9] Four decades later, Pauling and his coworkers described the molecular etiology of sickle cell anemia as an abnormal hemoglobin molecule.[10] Further characterizations during the 1950s revealed the abnormality to be a substitution of one of the amino acids on each of the two beta chains in the hemoglobin molecule.[11]

In 1970 awareness of sickle cell anemia passed from the medical laboratory into America's political conscience with President Nixon's health message to the 92nd Congress. It asked for a major increase in federal expenditure to promote sickle cell research, education and screening programs. This was the initial step towards the eventual passage of the National Sickle Cell Anemia Control Act on May 16, 1972. With increased funding available large numbers of mass screening programs were instituted and laws requiring mandatory screening were established in various states.[12] The principal goal of these mass screening programs is the detection of the carrier state, as well as occasional cases of sickle cell anemia and associated hemoglobinopathies.

The Current Problem

By November, 1972 disappointment mixed with criticism was already being expressed over the new legislation.[13] In Virginia, the only black member of a local school board feared the information gained from mandatory screening programs, as required by Virginia law, might be used to discriminate against the children tested. Dr. Robert Nalbandian, a leading sickle cell anemia researcher, denounced the Control Act as "reverse racism" stating it was the product of a "spasm of compensatory guilt-ridden excess."[13] Abuses of persons positive for the trait were already being documented. Among these were trouble receiving life insurance and health insurance, discrimination on the job,[14] and in one instance a delay in the adoption of a child because it was discovered to have sickle cell trait.[4]

IRA M. RUTKOW and JEFFREY M. LIPTON, third year medical students, St. Louis University School of Medicine, St. Louis, Missouri.

Address reprint requests to Dr. Lipton at the Department of Community Medicine, 1320 S. Grand Blvd., St. Louis University School of Medicine, St. Louis, Missouri 63104.

In addition to the social and political controversies surrounding sickle cell anemia screening programs many medical and ethical issues have also arisen.[15] [16] These medical and ethical questions are based on the fact that sickle cell anemia is unfortunately unique among the genetic diseases with a detectable carrier state, which are currently screened for on a mass basis, in that no known treatment yet exists and the only form of prevention is to advise heterozygous couples not to have children. At present, though, this counselling is not being carried out.[17] [19]

Discussions of the issues surrounding the sickle cell controversy give rise to the following questions:

1. of what benefit or harm have sickle cell screening programs been to date?,
2. can effective screening programs be run?,
3. to what segment of the black population should such programs be directed?, and finally,
4. should mass screening programs, even on a voluntary basis, be continued?

The current literature and lay press contain many anecdotal reports and impressions dealing with these issues. This paper attempts to address these questions based on the analysis of data gained from two surveys conducted in January and February, 1973 involving the State Departments of Health in all fifty states and the District of Columbia,[12] and the participants of a recent mass screening program and their families.

Methods

A sickle cell anemia testing (SCAT) program was held in Spring, 1972, in a previously unscreened, uneducated and uncounselled school district in St. Louis County (Missouri) which has a large number of black students.[20] The program, in retrospect, fulfilled essentially all the requirements set forth in the paper, "Ethical and Social Issues in Screening for Genetic Diseases"[14] which outlines eleven "principles for the design and operation of screening programs."*

A mail questionnaire survey was conducted of all the participants and their families of the Spring program concerning their impressions about the screening as well as their knowledge, attitudes, and opinions regarding sickle cell anemia and trait.

A total of 351 family units were contacted (representing greater than 90% of the families having children who were tested) with 177 (50.4%) returning questionnaires. One hundred and fifty-eight high school and 175 junior high school students were given similar questionnaires (representing about 99% of the total number of students tested in these schools) with 112 (70.8%) and 133 (76.1%) students returning the questionnaire respectively. The total response to the survey was 422.

Additionally, a brief questionnaire was sent to the directors of the State Departments of Health to obtain their opinions and attitudes on mandatory SCAT programs, governmental appropriations and state and federal legislation dealing with sickle cell programs. The return was 100%.

Results and Discussion

The design of a genetic screening program must be based on well defined goals, the most important of which are: 1) to improve the health of persons suffering from genetic diseases, 2) to educate the participants about the particular disease entity they are being screened for, 3) to inform carriers of alternatives open to them regarding future marriage and reproductive plans, 4) to reduce the personal anxiety of those considered in a population at risk for a particular genetic disease, and 5) to decrease the frequency of the abnormal gene.[14]

The conclusions based on our data will show that current SCAT programs do not fulfill the above criteria and, in fact, are presently counterproductive.

At the time of the survey, the California, District of Columbia, Georgia, Illinois, Indiana, Kentucky, Louisiana, Massachusetts, New York, and Virginia state health departments reported having laws requiring mandatory SCAT programs, and at least four additional ones (Arizona, Connecticut, Maryland and Ohio) had legislation relating to non-mandatory screening procedures. By December 31, 1973, the Mississippi legislature had also established mandatory screening programs while those of Louisiana, Massachusetts and Virginia had taken measures "to undo the aftermath of legislative overkill"[21] by passing bills to reestablish voluntary testing. In addition, New Mexico and North Carolina had passed bills providing for voluntary screening programs, while New Jersey passed other legislation. (Table 1) Of the eight states with mandatory screening laws, all have black populations greater than 200,000 and the impact of such a distribution is that mandatory screening legislation currently affects greater than 35% of the total black population of the United States.[12] [22]

In view of the large number of black Americans who have been screened, one of the shortcomings of SCAT programs to date has been the failure to compile reliable statistics for the calculation of sickle gene frequency.[20] [23] Theories postulated to account for this problem have demonstrated bias to be present in both walk-in[1] and inpatient[24] screening programs. The current investigation has revealed an additional bias, in that many people positive for the

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**Protocol of program available upon request.*

TABLE 1

STATES HAVING LAWS RELATING TO SICKLE CELL ANEMIA*

A. Mandatory Screening Laws

State	*Date Effective*
California	March 4, 1972
District of Columbia	1972
Georgia	1972
Illinois	October 1, 1972
Indiana	July 28, 1972
Kentucky	January 1, 1973
Mississippi	April 27, 1972
New York	September 1, 1972

B. Non-mandatory Screening Laws

State	*Date Effective*
Arizona	August 13, 1972
Connecticut	1971
Louisiana	July 2, 1973
Maryland	July 1, 1972
Massachusetts	1974
New Mexico	July 1, 1973
North Carolina	July 1, 1974
Ohio	October 18, 1972
Virginia	March 12, 1973

C. Law Dealing with Treatment

State	*Date Effective*
New Jersey	November 13, 1972

**Compiled as of December 31, 1973.*

trait have begun to present themselves for rescreening at SCAT programs to verify the result of their prior test. In this study 55.6% of all trait positive elementary school children were taken by their parents to be retested, and 82.6% of the trait positive junior high school and high school students were retested. Conversely, people who have been found to be negative are less likely to submit themselves or their children for retesting. This is demonstrated by the fact that only 9.3% of all trait negative elementary school children were taken by their parents to be retested, and only 16.6% of the trait negative junior high school and high school students had themselves retested. This disregard for sampling error makes prevalence reports, as well as calculation of sickle gene frequency, unreliable and has tended to overestimate the extent of sickle cell trait in the population.

In consideration of the issues posed in the introduction, questions were asked to identify other possible shortcomings of SCAT programs and their effect on those being screened.

Part of the survey was aimed at determining the community's degree of acceptance of the program by asking whether or not they (the parents, junior high school and high school students collectively) were "upset by the way in which the testing program had been run." Eighty-four and one half percent of the total respondents answered no with 87.3% of the parents indicating their children had not been upset. The figures support Lappé's concept that carefully planned and well designed screening programs, with an educational and counselling component, can be effectively run with the approval and help of the community being screened. However, when the community and the State Departments of Health were presented with a choice of having government appropriations directed towards finding the cure or towards increasing the number of mass screening programs, both the Health departments and the community favored the former.[12,22] (Table 2) This attitude is contradictory to the intention of the portion of the Control Act calling for implementation of mass screening programs and of the eight state legislatures which established mandatory sickle cell anemia testing.

TABLE 2

RESPONSES OF THE COMMUNITY AND THE STATE DEPARTMENTS OF HEALTH[22] (PERCENT RESPONDING)

Group Responding	*Finding Cure*	*More Screening Programs*	*Both*	*Uncertain*
Community	67.3	14.5	9.7	8.5
Health Departments	54.9	11.8	19.6	13.7

There are varying opinions regarding the segment of black population to whom SCAT programs should be directed.[12,13,25,26] One expects that the population benefitting the most from a screening program is that closest to reproductive age, and best educated about sickle cell disease.[25] The two main concepts stressed in educational programs, as a prelude to screening, are an understanding of the mode of transmission of the illness and the distinction between the anemia and trait in terms of morbidity. An attempt was made to determine which group of participants (parents, junior high school or high school students) were most "educated" in terms of understanding these two concepts. The following two questions were asked in this regard, "Is sickle cell *trait* more harmful than sickle cell *anemia*?" and "Can a person catch sickle cell anemia from his friends?" The participants were classified as "educated" by the ability to answer both questions correctly. (Table 3) The high school students were the most and the parents the least "educated."

Incorporating this data with current thoughts on the inadvisability of premarital screening, as being too late for any effective results,[12,21] (even though 22 of the health departments reported wanting to use SCAT programs as a prerequisite to obtaining a marriage license) the conclusion is that screening programs and their educational component should be

TABLE 3

"EDUCATIONAL" STATUS OF THE PARTICIPANTS

	Percent answering both questions correctly
Parents	42.8
Junior high school students	48.6
High school students	69.3

directed exclusively at high school students. Being in school, these children are readily available for education and testing, and they are approaching the age when concern about marriage and reproduction are becoming relevant.[25]

The reasons for the large number of departments of health desiring premarital screening are not well understood other than that they have neither taken into consideration the attitudes of the black community about genetic counselling nor understood the limitations inherent in such premarital screening. In the black community many persons believe that genetic counselling is a white plot aimed at carrying out genocide against blacks,[13, 27] while genetic counselors, as mentioned previously, claim they are not advising couples heterozygous for the trait not to have children, but rather presenting the "arithmetic" and letting them make up their minds.[17-19] Unfortunately, such advice creates a lack of options often leading to emotional difficulty for the engaged or newly married couple.[28] Considering these two points, the case for premarital screening programs is both unfounded and unwise until effective preventive and therapeutic measures become available.

As noted in the introduction there is continuing discussion within the black community concerning the misuse of information obtained from sickle cell screening programs and the possible discrimination one faces being a trait carrier.[4, 13, 14, 29] When these programs are conducted within a school system efforts are frequently made to ensure that the test results are kept on the permanent school health record.[23] When participants were asked if the test result was recorded in their child's (own) school health record might this information be used against them, only 9.2% answered yes. Even so, this shows that concern about potential abuse of such data and possible discrimination is present. However, when the community's attitude toward a person positive for sickle cell trait is taken into account (Table 4) it becomes apparent that the burden for these persons is not only the racial overtones of the sickle cell issue, but more importantly the black community's concept of the disease.[22] Sickle cell trait, considered by many to be a benign condition[4-6] is felt by approximately one-fifth of this black community to be a personal health hazard. Despite reports of difficulties under "extraordinary physiological stresses"[8] it is not justifiable to burden the 6%-10% of the population carrying the trait with the impression that they are handicapped or in poor health.

TABLE 4

ATTITUDE OF ALL RESPONDENTS TOWARDS PERSONS POSITIVE FOR THE TRAIT

Question	*Percent answering yes*
1. If your child (if you) were found to have sickle cell trait, do you think this would affect his (your) school work?	14.5
2. If your child (if you) were found to have sickle cell trait, do you think this would affect his (your) ability to get a job?	16.8
3. If your child (if you) were found to have sickle cell trait, do you think this would affect his (your) playing outdoors?	25.8

When attempts were made to correlate these data with the previously discussed "educational" status no statistically significant difference was found between the "highly educated" and the "poorly educated" respondents. The same was also true for possible correlations between different age groups and trait and non-trait carrying populations.

One of the stated goals of genetic screening programs is to reduce the frequency of a recessively inherited disease by counselling heterozygous couples to refrain from marriage or reproduction, and if prenatal detection is available, to utilize selected abortion of effected offspring.[14, 26] Since *in utero* detection of sickle cell anemia is presently unavailable to clinicians the only way in which SCAT programs can fulfill this goal is through counselling. With regard to counselling, 42.5% of all trait negative respondents felt that if they (their children) were trait carriers it would affect their future marriage plans, and 55.7% of these respondents felt future child-bearing plans would be affected. However, the

TABLE 5

ATTITUDES OF TRAIT POSITIVES AND TRAIT NEGATIVES REGARDING THE FUTURE MARRIAGE AND REPRODUCTIVE PLANS OF PERSONS POSITIVE FOR THE TRAIT

	(percent answering yes)	
Question	*Trait positives*	*Trait negatives*
1. If your child (if you) were found to have sickle cell trait, do you think this would affect his (your) future marriage plans?	40.0	42.5
2. If your child (if you) were found to have sickle cell trait, do you think this would affect his (your) wanting to have children in the future?	44.9	55.7

current goals of the screening program still fail to gain acceptance with a substantial portion of the total population. When these results are further analyzed for the trait positives (Table 5) it is interesting to note that they seem to be less concerned than trait negatives about such plans, even after having received genetic counselling. In light of evidence that genetic counselling has led to diminished reproduction in certain instances,[30] the negative implications of the data presented should be investigated.

Conclusions

At this time SCAT programs are unwarranted and even counterproductive based on:

1. the lack of effective treatment or prevention for sickle cell anemia,
2. the opinion of the community and the health departments to direct the major portion of sickle cell anemia funding towards finding the cure (therapy) instead of instituting more screening programs,
3. comments about screening programs being a form of genocide against the black community,
4. the fact that counselors are hesitant to suggest birth control as a means of prevention,
5. the erroneous impression of sickle cell trait, even by physicians,[31] as a personal health hazard, and finally,
6. the community's low acceptance of the fundamental goals of genetic screening programs.

As long as societal factors bear so heavily on those labeled as trait carriers mass SCAT programs should be discontinued and mandatory screening laws repealed, to be replaced with the capability of voluntary screening for those persons desiring such information on an individual basis. However, in view of the many unanswered questions regarding the morbidity associated with sickle cell trait, further research should be pursued as to the true nature of any related medical problems with special attention focused on those persons undergoing everyday occupational, marital and recreational stresses. Once this is accomplished an effort should be redirected at education about sickle cell anemia and trait as part of a general program of health management in context with the other health problems more closely related to morbidity in the black community than sickle cell anemia (eg. hypertension).[32 33]

Recent advances in sickle cell research are leading to the general availability of detection of sickle cell anemia *in utero*[34 35] as well as effective therapy.[36] [37] At such time that either prevention or treatment exists, mass screening programs for sickle cell trait should be reinstituted and directed at high school students.

Acknowledgements

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Important Advances in Clinical Medicine

Epitomes of Progress — Otolaryngology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Otolaryngology. Each item, in the judgement of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance.

The items of progress listed below were selected by the Advisory Panel to the Section on Otolaryngology of the California Medical Association and the summaries were prepared under its direction.

Bone Grafts in Head and Neck Surgery

Bone grafts can be divided for immunological purposes into three categories: (1) autografts, in which donor and recipient are the same; (2) homografts, in which both donor and recipient belong to the same species (including the subdivisions of allogenic, in which the donor is unrelated, and isogenic, in which the donor is closely related); and (3) heterografts, in which the donor and recipient are of different species.

Without exception, best results are still obtained with autografts, although poor remodeling, nonunion, resorption, and lack of osteogenesis occur in particular with solid, cortical implants, especially if intractable infection occurs. A notable advance has been the use of combination cancellate bone and marrow in performed containers. The use of homograft bone in such a container is currently under investigation. Experimentation continues on best methods of preserving grafts, but to date, grafts which are expected to contain viable cells and promote osteogenesis have been autografts.

Reconstructive problems which require only an inert substance to maintain contour may utilize homograft or heterograft substances. An exception may be the recent successes of homograft ossicles, although wide investigative experience must still be obtained. With improving techniques of storage and alteration to remove potential immunologic characteristics of graft materials, the storage and use of homograft bone in partial or complete anatomic form appears to hold promising possibilities.

ALAN NAHUM, MD

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Homografts in Otology

Restoration of hearing by homograft reconstruction of the ossicles, tympanic membrane and posterior osseous external canal defects is now a clinical reality. Middle ear and canal malformations or defects resulting from embryologic impropriety, infection, tumor or trauma may often be repaired by using homograft tissue.

Ear transplant material is removed from the donor within 24 hours of death. There is no donor age limit although the donor should be free of infectious or malignant disease. The homograft tissue is procured by removing a portion of the temporal bone from the floor of the middle cranial fossa, which includes the middle ear and external auditory canal. Techniques for sterilizing, processing and preserving ear transplant tissue are established and such banked tissue is now available to ear surgeons.

The use of otologic homograft tissue is an attractive alternative because reconstruction using various types of plastics and metals has not been very successful. Extrusion of alloplastic materials in the middle ear is fairly common. The results of homograft ear operations during the past five years are most encouraging. There are no reports of extrusion or rejection of otologic homograft tissue.

MANSFIELD F. W. SMITH, MD

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Smith, M.F., Proffitt, S.D., Shinn, J.B., et al: An otologic tissue bank. Trans Am Acad Ophthalmol Otolaryngol 76:134-141, Jan.-Feb. 1972.

The Cytotoxic Test for Diagnosing Food Allergies

There have been a number of efforts to devise and utilize clinical methods for diagnosing food allergens: Rowe, Rinkel, Randolph, Lee and others have made contributions. Nevertheless laboratory methods seemed desirable due to the large amount of time used in the clinical methods, except for skin tests, which carry about 75 percent error. In 1956 Black proposed the use of the cytotoxic reaction for diagnosis of food allergy. This presumably was based on the experiments of Byron H. Wacksman.

We took up the test in 1957, gradually refining the technique so that it is now fairly reliable, the main remaining difficulties being the changing of the patients' diet and the fact that diagnoses are often multiple.

As we do it, the cytotoxic test consists of observing with the microscope the reactions of the blood cells (principally the activity of the neutrophils) to the food extracts in the presence of the patient's serum. All glassware which comes in contact with blood cells must be chemically clean and "silicated." Known accurate amounts of food extracts are used (0.1 mg of the powder per ml of pyrogen-free water overnight, then decanted and further diluted). Rings of vaseline the size of the coverslips are put three per slide to hold (1) the food extract; (2) the cells and serum, and (3) the coverslips. After an hour the cells are observed and the results recorded for each food.

After 15 years of use on almost 5,000 patients, and 250,000 individual tests, many and even some spectacular cures have been accomplished.

William T. K. Bryan, MD

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Acupuncture and Deafness

Informal claims from China during the past two years have engendered considerable enthusiasm among patients for using acupuncture to treat sensorineural hearing losses. Experience in the United States is quite limited but of the several attempts at treatment by persons generally recognized as experienced acupuncturists, none have been successful when documented before and after by audiograms. Thus, while we can in no way state with certainty that acupuncture does not help deafness, the present evidence is negative.

It has been argued that such failures probably result from the use of the more traditional acupuncture points instead of newer ones discovered by China's Barefoot Doctors. They may be correct, but since one of these new points requires that a needle be inserted between C_1 and C_2 to a depth of 3 to 4 inches, it probably will be a long time indeed before practitioners of a more conservative bent find out.

F. Blair Simmons, MD

Diagnostic Uses of Immunoglobulins

Otolaryngologists and immunologists are investigating the presence, quantity, and function of immunoglobulins in the respiratory tract. These immunoproteins, IgG, IgA, IgM, IgD and IgE, are part of the gamma and beta fractions of serum and are also present on mucous membrane surfaces and in various body fluids. The technique most commonly used to quantitate these immunoglobulins (except IgE) is termed "single radial diffusion," implying incorporation of a monospecific antibody in the agar used for immunodiffusion studies; and serum levels of the immunoglobulins have been determined throughout the human life span. By varying antibody concentration in the agar, very low levels of the immunglobulins can be measured routinely, and normal ranges of these proteins in certain body fluids such as nasal secretions have been established. An elevated serum IgM or IgG often signifies a response to an infection. IgE serum elevation may reflect an allergic disorder. IgA serum levels also may vary with host response to infection; but more important, IgA is the major or only immunoglobulin found in respiratory secretions. Individual and circadian variations of respiratory IgA levels have been documented, and this variation may play a role in susceptibility to infection, since a decrease or absence of any immunoglobulin can be associated with increased incidence of infection.

The Ig levels cannot be used alone for a diagnosis of any one disease — except the dysgammaglobulinemias — but may be useful in connection with history, physical examination, and other tests in determining the overall ability of the individual to handle infections.

Stebbins B. Chandor, MD

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Bell's Palsy (Facial Paralysis)

The Diagnosis Bell's palsy implies, by definition, a non-specific involvement of the peripheral component of the seventh cranial nerve (facial nerve) with paralysis of structures innervated by the facial nerve.

The possibility of a systemic cause must always be considered and an evaluation by the generalist with medical studies as necessary should be performed.

If paralysis is on the basis of truly non-specific cause, medical management is in order. Treatment other than that is supportative with special attention to the eye to prevent corneal disease.

If the patient is seen early (preferably within 48 to 72 hours) steroids are the drug of choice.

Ninety percent of patients will recover spontaneously within three to six weeks. The remaining 10 percent will be left with a residual paresis or paralysis.

Special studies to predict who these 5 percent will be have been advocated and surgical intervention recommended. The studies consist of electrical studies for measurement of electrical nerve potentials.

Responsibility of management and treatment must be that of the primary physician, with consultation for those patients who do not respond to medical management.

Seymour J. Brockman, MD

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Adour, K.K., Wingerd, J., Bell, D.N., et al: Prednisone treatment for idiopathic facial paralysis (Bell's Palsy). N Engl J Med 287:1268-1272, 1972.

Some Aspects of Dizziness

The Sense of movement (subjective vertigo) or the actual illusion of objects moving (objective vertigo) is a strong indication that the vestibular system is involved in the abnormality. On the other hand, unsteadiness, not as neatly defined as true vertigo, is not commonly related to the vestibular system. An otoneurologic evaluation of the patient complaining of vertigo necessarily includes a detailed history regarding: (1) the onset of the symptoms, (2) their character, duration, and mode of cessation, (3) whether they are single episodes or repeated, and (4) associated symptoms such as tinnitus, hearing loss, syncope, and palpitations. The examination itself must include evaluation of the cranial nerves, extroacular movements, cerebellar tests (including Romberg, modified Romberg, and pastpointing), tests for dysdiadochokinesis, vestibulospinal tract tests (such as position maintenance of extended arms with eyes closed), and electronystagmographic (ENG) analysis of eye movements. The electronystagmographic analysis of the eye movements should include: (1) *pendular tracking*, which can give evidence of abnormalities at the level of the oculomotor nuclei, (2) *calibration*, which not only allows quantitation of the ENG tracings but its qualitative pattern can give clues as to a peripheral or central nature of the disorder, (3) *optokinetic stimulation* which when recorded as an isolated abnormality is supportive of a cortical lesion, and (4) *positional testing* with particular attention to latency and nystagmus, associated vertigo, and the duration of the positionally provoked nystagmus for more than two minutes.

Rotational testing is not routinely used in many laboratories but holds promise in the future perhaps even in differentiating between sites of peripheral lesions. *Caloric testing* using the Hallpike method is usually modified so that electronystagmographic analysis is obtainable with stimulation and recording in darkness and with eyes closed, which allows the examiner to look for several types of abnormal responses. Among these would be a *canal paresis,* that is, where stimulation of one ear results in less vigorous nystagmus regardless of temperature of irrigant (7° above and 7° below body temperature); *directional preponderance,* which is a tendency, regardless of which ear is irrigated or what temperature is used, for nystagmus to be more vigorous in one direction (generally considered as a latent spontaneous nystagmus); *dysrhythmia,* which is an irregular nystagmus pattern usually indicative of cerebellar nuclei involvement; *perverted nystagmus,* which is nystagmus occurring in a direction other than that at the plane of the semicircular canal stimulated — that is, vertical nystagmus elicited at the time of horizontal canal stimulation consistent with a brain stem lesion; and *provoked nystagmus,* which, regardless of stimulus used, is always in the same direction (considered a provoked latent paretic nystagmus).

The above findings from an otoneurological evaluation coupled with the history and any other extension of the neurologic examination, laboratory, or x-ray findings, as well as audiometric testing, should allow differentiation of the disorder on a given patient. It is often convenient to use classical Meniere's disease as a point of reference in differentiating between the many types of disorders.

Robert I. Kohut, MD

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Evaluation of the Dizzy Patient

Few problems presented to physicians of all disciplines are more perplexing than the "dizzy patient." Fortunately the majority of the disorders of the vestibular system are self-limiting. Most patients are initially treated symptomatically and it is only when symptoms persist that more thorough evaluation and referrals to a neurologist or otolaryngologist are made.

Even after extensive neurotological workup a definitive diagnosis may prove elusive because of the purely subjective nature of the tests of the vestibular function. Some neurotologists, either through long experience or deep insight, can sense with great accuracy the nature of the problem. For most physicians without extensive experience the results of the primitive tests that have been commonly performed to not provide sufficient information to make a correct diagnosis.

Electronystagmography (ENG) has achieved relatively widespread acceptance and it provides permanent documentation of spontaneous, positional and induced nystagmus. By documenting the response in the dark, it also is of value in demonstrating latent spontaneous nystagmus that cannot be detected with the patient's eyes open in a lighted room.

The current application of modern technology for inducing vestibular nystagmus (the new rotating tables) and the analysis of the voluminous ENG recordes responses by utilization of computer techniques, offer great promise for significant improvement in neurotological assessment. These techniques, developed in the animal laboratories, are now being applied to humans and are providing quantitative measurements of vestibular function in health and in disease.

Paul H. Ward, MD

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Recent Advances in Differential Diagnosis of Hearing Problems

Standard pure tone and speech audiometric tests provide considerable information to otologists regarding uncomplicated middle ear or cochlear disease. Special diagnostic problems occur when responses to bone-conducted sound are nearly equivalent to air-conducted sound or when there is no consistency between the medical examination and the test results. Conditions such as otosclerosis, discontinuity and lateral fixation present a problem in differential diagnosis. With the advent of impedance audiometry, more precise information regarding the site of disease is available. Impedance tests describe (1) the mobility of the ear-drum, (2) the resistance of the moveable structures of the middle ear and (3) the presence or absence of the stapedial muscle reflex. These measurements can be taken in children as well as adults and may be of particular advantage to the school audiologist in identifying and referring children with otitis media that is not demonstrated by screening audiometry.

Hearing impairments may be designated as sensori-neural or cochlear on the basis of the pure tone audiogram. This, however, does not describe the stie of lesion other than to exclude middle or outer ear involvement. Retrocochlear lesions may occur at any point beyond the cochlea on the auditory pathways such as the 8th nerve, brain stem or auditory cortex. Various audiometric tests have been designed to differentiate between these pathologic conditions. Each presents a specific listening task which increases in difficulty. Otologists and audiologists have been encouraged by finding that there is a high correlation between these clinical tests results and the medical-surgical findings.

Seymour J. Brockman, MD

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A Protocol for Evaluating Dizziness

A protocol has been established for the evaluation of a dizzy patient when there is any suggestion that the dizziness may be related to the inner ear. This protocol includes hearing tests, vestibular tests and x-rays of the inner ear. If these tests fail to show an otologic reason for the dizziness, then it is suggested that the patient have a five-hour glucose tolerance test, thyroid studies, FTA/Abs studies and, in some cases, an allergic evaluation. These studies will often give a clue to a treatable cause of dizziness.

William F. House, MD

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Powers, H.P., House, W.F.: The dizzy patient — allergic aspect. Laryngoscope 79:1330-1339, 1969.

The Significance of Post-Irradiation Edema of the Larynx

Variable degrees of laryngeal edema often accompany curative dose, full course radiation therapy for cancer of the larynx. This edema usually subsides within a month or two. However, persistence of significant edema of the larynx beyond six months after completion of radiation therapy makes careful inspection and evaluation of the larynx difficult. A thorough search for tumor in such cases appears warranted. In 11 of our 14 most recent cases of "persistent edema," residual or recurrence eventually was proved to be present.

The edema is believed to be secondary to increased vascular permeability and obstruction of the small veins and lymph channels from hyaline degeneration of their walls. These radiation changes facilitate the obstruction to the passage of tumor cells through the lymphatic channels.

Less likely factors that may be responsible for "persistent postradiation edema" are previous laryngeal operation, infection, and perichondritis. Keeping the delayed development of edematous larynx under observation until tumor manifestations are clinically apparent diminishes the chance for curative operation. Diligence is called for when confronted with the diagnostic dilemma of "delayed edema." When evaluating such a patient, repeated biopsy, then exploration via laryngofissure are indicated in order to confirm the high diagnostic probability of residual or recurrent carcinoma.

PAUL H. WARD, MD

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Medical Aspects of the Disability Program under Social Security

Ruben Fialkoff, M.D.

Whenever a physician is asked to furnish a medical report in connection with a patient's claim for social security disability benefits, it's a reminder that social security is not just for the retired — it also provides important financial help for people who cannot work because of a serious illness or injury. Currently, over 3 million men, women and children receive social security disability checks every month because someone in the family — usually the breadwinner — is disabled. Their payments total almost $5 billion a year. In addition, more than 76 million working men and women including physicians are insured for disability benefits as a result of their earnings — wages or self-employment — under social security. Beginning July 1, 1973, full Medicare protection is extended to persons under age 65 who for at least 24 consecutive months have been receiving monthly social security benefits because they are disabled.

A person under 65 can receive monthly disability benefits if he has a physical or mental impairment severe enough to prevent him from doing any substantial gainful work for a year or longer. Benefit amounts are in proportion to earnings contributed.

Social security disability benefits can now be paid to: (1) A disabled worker under 65 and his family; (2) a person continuously disabled since childhood (before age 22); and (3) a disabled widow or widower 50 or over.

Reporting Medical Evidence

When a patient applies for benefits, he is asked to submit medical evidence to support his claim. This evidence usually consists of data from the records of his treating physician, clinic or other medical source. Our experience with the disability program in Connecticut indicates that in the majority of cases no further medical development is needed because the treating physician already has enough information on record as a by-product of his treatment of the patient to provide a good picture of the medical condition and how it limits the patient's ability to work.

The treating physician is not, however, placed in the position of being the one who must decide whether a patient's claim for disability benefits is allowed or denied under the social security law. The responsibility for making the determination of disability rests with the Bureau of Disability Determination. This is the full name of the agency in Connecticut responsible for the evaluation of social security disability claims for Connecticut residents. Like other State agencies throughout the country that work with Social Security in the disability insurance program, the Bureau of Disability Determination in Connecticut includes both physicians and trained disability examiners on its professional staff. They form a balanced team of medical and non-medical people who process claims of a strictly medical nature as well as those needing assessment of vocational factors which bear on the disability decision.

You can help speed the decision on your patient's claim by reporting all relevant data requested about his medical condition as promptly as possible. The evaluating physician here in the Bureau of Disability Determination never sees the patient. He depends heavily on information supplied by the physician or clinic to assess the severity of the applicant's impairment, its expected duration and the extent of his residual functional capacity. The disability decision, therefore, rests largely on the completeness of the medical evidence obtained. A detailed report from the treating source, including objective findings and laboratory procedures, will usually be sufficient for us to evaluate the claim and make a decision. For example, lets consider a patient with a myocardial infarction, we would look in the report for a date of occurrence, place of hospitalization and reports of laboratory work, x-rays and serial EKG's. The EKG tracings in this case will permit the reviewing of the documentation by the agency physician. Equally important is to get a description of the chest pain, relation to effort, location, radiation and the extent of relief obtained by rest or proper medication.

If a medical report does not contain all the objective findings necessary to make a disability determination, one of our reviewing physicians may recontact the medical source. If the required information cannot be obtained in this manner or if the applicant has no treating source, we may decide to purchase a consultative examination to help us evaluate the case. Occasionally during the course of

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DR. RUBEN FIALKOFF, Chief of Emergency Service, Manchester Memorial Hospital; Associate in Medicine, Manchester Memorial Hospital, Manchester, Conn.; Acting Chief, Medical Unit, Bureau of Disability Determination, State of Connecticut, Hartford, Conn.

our medical review of these consultative examination reports, we discover medical findings which may be of interest to the patient's treating physician. As a service and without charge, we send a copy of the consultant's report in such cases to the physician for his use in treating the patient. This service is provided, of course, only when we have appropriate authorization to disclose the information.

Consultative examinations are obtained in about 20 percent of Connecticut claims; that is, at a rate of about 250 a month. Fees are based on a schedule which has been worked out with the Connecticut State Medical Association. We welcome inquiries from qualified Connecticut doctors who wish to have their names placed on our roster.

Establishing the onset date of disability — often a key factor in determining the beginning date and amount of the claimant's benefits — is frequently difficult. Therefore, it is extremely helpful if the reporting physician includes the date of each important fact or finding. To save time, he may enclose photocopies of pertinent sections of the patient's chart or of hospital or consultant's reports.

Criteria for Evaluating Disability

In making disability determinations, our agency used medical criteria developed by the Social Security Administration to insure uniform evaluation of all applicants no matter where they live, and to help simplify and speed the decision process. These criteria were worked out with the aid of practicing physicians, major medical organizations and the Social Security Administration's Medical Advisory Committee.

The disability insurance program is one that calls for a decision based on the facts in each case. On the medical side of the ledger, a person who is not working can meet the social security definition of disability if he has an impairment or combination of impairments that are the same as, or medically equivalent to, any set of findings in the medical criteria. However, for those claimants whose impairments fall short of this test, such non-medical factors as age, education, training and work experience added to the functional limitations imposed by the impairment are taken into consideration in deciding whether to allow or deny the claim.

The complete criteria, including the medical findings listed by body system, are contained in "A Handbook for Physicians" designed especially for professionals who come in contact with the disabled population. The handbook describes impairments in terms of specific symptoms, signs and laboratory findings that are presumed to be severe enough to prevent a person from working for a year or longer.

The handbook may be obtained from the Bureau of Disability Determination, 600 Asylum Avenue, Hartford, Connecticut. Telephone number is 566-3744. We also welcome any inquiries from physicians who wish to know more about the Social Security Disability Program and its policies and procedures.

PHYSICIANS IN POLITICS

Physicians have long been admonished to "get involved" in political affairs of this country. The results are becoming evident as more Kansas Medical Society members seek and attain offices at various levels of government.

The mayors of the largest and the fourth-largest cities in Kansas both are physicians: James M. Donnell, Wichita, and Jack D. Walker, Overland Park.

Three physicians serve as state legislators: John T. Brauchi, District 20; Leland Speer, District 37; Edward F. Steichen, District 119.

On the national level, William R. Roy serves as Congressman from the 2nd District.

Connecticut Physicians in Texas in the 19th Century

Stanley B. Weld, M.D.

The Lone Star State of Texas can boast of two physicians who emigrated there from Connecticut in the early 19th century. One of these was Samuel Sexton, M.D.; the other, James H. Starr, M.D.

Dr. Sexton's birthplace in Connecticut seems to be unknown. The most interesting fact concerned with him is that he was with the Magee-Gutierrez Expedition in 1813. Little is known of him prior to this date except that he lived in New Orleans before coming to Texas. Apparently he was not present at Nacogdoches, Texas, when Magee's army was being organized since his name does not appear among its roster of physicians. However, it seems he shared the successes and defeats of that expedition. In one battle, presumably the Battle of the Medina, he was taken prisoner. His life was spared in order that his professional services might be utilized. After six months detention he was set free and enabled to return to his home.

Dr. Sexton then went to Ohio where he practised for many years. Two letters to a Stephen F. Austin show that he then lived in Alexandria, Louisiana, during the years 1824 and 1825. Then he appeared in San Felipe de Austin in July 1825 but apparently did not remain in Texas very long. When the excitement of the year 1836 came, he could not resist the call of Texas even though he was 54 years old. There apparently is no record existing of his part in the Texas Revolution. In 1837 he moved to San Augustine, Texas, and there engaged in the practice of medicine until his death on March 23, 1841 at the age of 59. He left a diary which recorded the career of one child, a Confederate Congressman.

Of the other emigrant from Connecticut, Dr. James H. Starr, more is known. His career, divided between the practice of medicine and public office, was an outstanding one. He was born in the little town of New Hartford, Connecticut, on December 18, 1809, graduated with the degree of Doctor of Medicine from Washington College in Ohio at the age of 23, and then practised medicine in Georgia for five years. Dr. Starr came to Texas in 1837 and located in Nacogdoches. For two years he seems to have been little known until he was appointed Secretary of the Treasury by Lamar in May 1839 and characterized as "our Estimable critizen." According to his letters and records he appears to have been familiar with financial matters and to have carried out the duties of his office with credit. In a letter under date of July 11, 1839, written to General Bernard E. Boe, by Dr. Starr's confrere, Dr. Ashbel Smith, he is said to have been a "modest, sensible man" devoted to his department.

In 1840 Dr. Starr asked for a leave of absence, following this with his resignation that same August for the following reasons: "On enquiring into my private affairs, I find them in a condition demanding my early attention, and shall be driven by necessity to render my resignation in July next. For some time past I have known that my private interests were suffering by my absence from this place, but was ignorant of the extent of the mischief thus resulting to me. Previous to receiving the appointment which you did me the honor to confer upon me, I was engaged in the practice of medicine, which afforded an income more than equal to all of my immediate necessities, and when I concluded to accept the invitation and proceed to the seat of Government, it was under the belief that sufficient sums would be realized from the amount due me by individuals, to support my family during my absence. In this I was disappointed. Every debtor shelters himself from the demands of his creditors under the general plea of 'hard times;' and in the present state of our judiciary it is folly to attempt coercive collections."

Worthy of mention is an interesting experience which Dr. Starr had with Monsignieur Alphonse de Saligny, French Minister to the Republic of Texas. It appears that the minister passed some counterfeit treasury notes in the amount of $300 and refused the responsibility. With possible complications arising as a result, the matter was settled when Dr. Starr and two of his friends redeemed the spurious notes.

Following his resignation as Secretary of the Treasury, Dr. Starr went back to the practice of medicine in Nacogdoches. His reputation was such that Lamar wrote a friend to the effect that Dr. Starr was the only man in that section "on whom I have any confidence." Almost twenty years later when Lamar was appointed United States Minister to Nicaragua, it was Dr. Starr who looked after the Texas interests of his good friend, Mirabeau B. Lamar.

DR. STANLEY B. WELD, M.D., F.A.A.C.S., F.A.C.O.G., Member of the Hartford Hospital, Medical and Surgical Staff, Hartford, Conn.

Dr. Starr was apparently a general practitioner which included obstetrics, for in his diary Adolphus Sterne makes this interesting reference to the doctor: "Saturday October 3, (1840) last night about ½ past eight my wife felt pains incident to an event which will happen to the best of Families! — Sent for Dr. James H. Starr, no news at daylight this morning. At 4 P.M. my wife was delivered of a fine girl, Dr. Starr in attendance." Four years later the same diarist made this entry, to some, a little strange: "Twelve o'clock last night Mrs. S. sent me after a midwife did not find Mrs. Willbourne — but got Doctor Lewis whom I had engaged in case of accident but who now will have to perform all the duties of midwife." It is thought that Dr. Starr was not consulted because a short time previously he had what was thought to be smallpox. Sterne's final reference to Dr. Starr was on July 31, 1841: "Mrs. Sterne had fever all night — sent for doctor at day light, prescribed for her. Took Blue mass and calomel, very sick all day."

A man of many interests, Dr. Starr was particularly noted for his civic mindedness. In 1838 he was appointed President of the Board of Land Commissioners for Nacogdoches County and as such was able to offset the scheming designs of unscrupulous land speculators. He was one of the founders and for a long period a trustee of Nacogdoches University, a thriving institution until its demise at the outbreak of the War of the Rebellion in 1861. He continued to be interested in education, and in 1881 was appointed by Governor Roberts to the first Board of Regents of the University of Texas. This he was forced to decline because of poor health.

He left to posterity some valuable, well written notes explaining his attitude in seeking to harmonize the many conflicting political ambitions besetting the Republic of Texas. We quote: "It is time that the personal and partisan rivalries and jealousies which were engendered during the trying period of revolution and war should be forgotten. The laurels of success are sufficient for all without encroachment by one upon the just share of another. It was but natural that in those times of peril every patriot's mind should seek the best possible measures for a successful issue. That different measures should be favored by different individuals, and that each should advocate with earnest zeal his own scheme, and often with equal earnestness denounce the policy of others, was to be expected. All aimed at the same great end. Let history accord to each his just need of praise, unclouded by memorials of personal and partisan contention and animosities."

Then he goes on to explain why he gave up the practice of medicine. "My other engagements claimed so much of my time and thought that I felt it was my duty to withdraw entirely from the profession. I held the opinion that a physician in offering his services to the public in the treatment of disease, assumes a moral obligation of the most binding character to give to those who may place their lives in his hands the best efforts of body and mind that he is able to bestow; an obligation which denies to him the privilege of at the same time engaging in other pursuits, requiring such a division of thought and labor, as to detract from that singleness of purpose and impair his professional usefulness. With me the practice of medicine was always attended by harassing cares and anxieties, arising from a sense of its responsibilities and existing claims; hence I abandoned it without reluctance."

Even though Dr. Starr was opposed to secession, he gave his sons as soldiers to the Confederacy and even volunteered himself. His reputation as an executive was such that he was appointed Assistant Postmaster General of the Confederacy under John H. Reagan and continued to serve in this capacity to the end of the war. In 1870 he moved to Marshall where he became one of the largest owners of real estate in Texas. He died on July 25, 1890 and was honored by having Starr County named for him.

James H. Starr was a man of whom both Connecticut and Texas may well be proud. Unimpeachable in character, he found he could best serve his fellowmen in the role of a government employee. The qualities of devotion to duty and justice and dependability at all times which doubtless influenced him to select a profession, the practice of which required these and more, were carried over into his political life to the enrichment of Texas as a republic and later as a State. It is right that his family name appear in the appellation of his adopted State.

for a package insert in many instances. This would constitute a substantial saving for the manufacturer.

By a complete compendium, I do not mean a volume of prohibitive size. You don't need a book describing 25,000 products with an enormous amount of repetition. Rather, drugs should be arranged by class. Mutually applicable information would be provided, along with brief discussions pinpointing differences in specific drugs of that class. Listings would be cross-indexed in a useful way.

Other Available Documents as Sources of Information

Existing references such as PDR and the AMA Drug Evaluation are obviously useful but they are incomplete. Either they are not cross-referenced by generic name and do not group drugs with similar characteristics, or they do not list all the available and legally marketed drugs. And some of those omitted may be very useful. On the other hand, drugs made by more than one supplier, tetracycline for example, may be fully described a dozen times in the same book.

While perhaps PDR could be rearranged and cross-indexed with generics included, and while the AMA Drug Evaluation might also be modified and expanded, I am not sure that the end result would have all the attributes required for a useful compendium. At the same time, you would run the risk of amassing a voluminous and unwieldy tome.

Should Editorial Comments Accompany the Listings?

Subjective judgments, in my opinion, have no place in a compendium. However, if there is substantial evidence based on a sound body of science concerning relative efficacy of several drugs, certainly that information should be included. The committee of experts compiling and editing a particular section would also have to assess and indicate instances where a meaningful difference between drugs is pertinent.

Sponsorship, Compilation and Editing

Producing a book like this would undoubtedly be difficult and demanding. It would obviously take a great deal of talent and expertise, and would require a varied and experienced group, ranging from writers and editors to highly skilled clinicians and pharmacologists. Style, format and clarity of language would play an important part in determining the usefulness of the book. And it should be updated periodically and completely revised annually.

I have no opinion whether the government or the private sector should sponsor and/or finance the compendium. What is most important is that the compendium be an authoritative, objective and useful source of information for the doctor to have at hand as a ready reference.

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should in no way imply control over the practitioner's prerogatives.

Why Another Compendium?

A practicable, single-volume compendium cannot, nor is it necessary to, include all drugs on the market today. From my practice of internal medicine for some 15 years, my experience as a consultant, and as a faculty member of four or five medical schools, I would estimate that a doctor uses only 30 to 35 drugs regularly. The 1972 Physicians' Desk Reference, incidentally, contained about 2,500 entries.

As to whether there should be a federal compendium, in my opinion, as stated earlier, the answer is easy—there should *not* be one. The proposal assumes that existing compendia are inadequate. We're not sure of that at all. Whatever its imperfections, the present drug information system in the U.S. is open, multifaceted, pluralistic and extensive. Good compendia exist, as well as other ample sources on drug therapy, ranging from journal literature through AMA Drug Evaluation to company materials. Not all physicians may use such sources as often or as well as they should, but that is the fault of the man, not of the sources.

In any event, rather than produce another book, it makes much more sense to work on improving existing compendia, and perhaps they could, as knowledge advances, include more accumulated clinical data and experience, and more information on drug interactions and adverse reactions.

Implications of a Federal Compendium

Take a hard look at the implications of a federal compendium. It would have the force of law, virtually dictating what drugs to use and how to use them. In effect, it would be a regulatory document with legal or quasi-legal status, posing medical/legal problems similar to those the doctor may now encounter if and when he departs from the provisions of the package insert. A compendium under federal aegis would tend to restrict decisions on drug therapy to one orthodox level—a most dangerous trend for medicine.

New Compendium—A Medical Option

I detect no ground swell of initiative or support whatsoever for a federal compendium—or, for that matter, for a new compendium of any type. A 1969 PMA survey conducted by Opinion Research Corporation found that only 15 per cent of those physicians interviewed felt a new compendium was needed. And a large majority did not favor the involvement of the federal government if one were to be created, preferring instead a nongovernmental consortium.

Even if we come to a time when the medical profession itself opts for a new kind of compendium, it should be handled and financed, ideally, outside both government and industry. Final review and editorial authority could be delegated, say, to specialty bodies and medical societies—but above all, *not* the government.

Surely the health care system in the United States has far more vital matters to consider than the extensive cost and effort that would have to go into the preparation and maintenance of a new, monolithic compendium, and especially one bearing the imprimatur of the federal government.

Opinion & Dialogue

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Choline Bitartrate	15 mg.
Inositol	10 mg.
Calcium Pantothenate	2.5 mg.
Pyridoxine	0.25 mg.
Copper (from Copper Sulfate)	0.25 mg.
Zinc (from Zinc Oxide)	0.25 mg.
Iodine (from Potassium Iodide)	0.075 mg.
Calcium (from Dicalcium Phosphate)	72.5 mg.
Phosphorus (from Dicalcium Phosphate)	55 mg.
Potassium (from Potassium Sulfate)	2.5 mg.
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Magnesium (from Magnesium Sulfate)	0.5 mg.

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Leonard R. Tomat
Assistant Executive Director
Scientific Activities

Summary of Actions
Council Meeting
Thursday, March 21, 1974

I. Attendance

Present in addition to the Chairman, Dr. D. A. Grendon, and the Vice Chairman, Dr. C. W. Johnson, were: Drs. Cramer, Root, Jr., Spitz, Backhus, Nolan, Granoff, Fabro, Hess, Bradley, Nemoitin, Ragland, Jr., James, Krinsky, Dambeck, Roch, Hecklau, Canzonetti, Harkins, Mendillo, Barrett and Klare.

Also present were: Mrs. Lindquist, Mr. Tomat, Mr. Sweeney, Mr. Sullivan (AMA) and Dr. Richards.

Absent were: Drs. VanSyckle, Brandon, Gardner, Pelz, Kamens, Rubinow, Magram, Freedman and Hastings.

II. Routine Business

Approval of Minutes

As published and distributed, it was VOTED to approve the minutes of the meeting of February 13, 1974.

Life Memberships

It was VOTED to approve applications for Life Membership received from the following eligible Active Members:

M. David Deren, 1260 Park Avenue, Bridgeport (F).
Elwood K. Jones, 20 Old Barn Road, Fairfield (F).
Edward S. Lewicki, 858 North Main Street, Waterbury (NH).
David Galinsky, 35 Whitney Street, Hartford (H).
William E. Neff, Jr., 93 Main Street, Cheshire (NH).
Abraham S. Pinn, 75 Sherman Avenue, New Haven (NH).
Lawrence M. Tierney, 246 Elm Street, West Haven (NH).
Harold A. Bergendahl, 120 Lafayette Street, Norwich (NL).

Election of Student Members

It was VOTED to elect to Student Membership two applicants as follows:

Benjamin G. Ellenbogen, Two Greenlea Court, Westport
Medical College of Wisconsin — Class of 1977
Pre-Med: University of Wisconsin

Melvyn W. Kramer, M.D., 1576 Corbin Avenue, New Britain
University of Connecticut — Intern
Pre-Med: University of Rochester
Parent: Bernard Kramer

Date of Next Meeting

The Chairman scheduled the next meeting of the Council for Thursday, April 18, 1974.

III. Old, New and Special Business

Repayment of Loan — HCHCP

It was VOTED to accept for filing, and to acknowledge with thanks, a letter and a check received from David L. Warren, Treasurer of the Hartford County Health Care Plan, which notified the Council that the HCHCP was pleased to be able to repay the interest-free loan of $5,000 which was made to the Plan by the Society in 1972.

Nominations for AMA Council Membership

It was VOTED to accept for filing a memorandum received from the AMA which invited the submission of nominations to the AMA Board of Trustees for membership on AMA Councils elected by the House of Delegates. Nominations were made as follows:

Council on Medical Education — Stuart Ragland, Jr., Colebrook.
Council on Medical Service — James H. Root, Jr., Waterbury.
Judicial Council — E. Tremain Bradley, Norwalk.

Communications — "Medical Practice Committee" of ACOG

It was VOTED to accept for filing two communications received from the subject Committee of the Connecticut Chapter of the American College of Obstetrics and Gynecology. The first of these reported alleged "fee setting" by the Hartford County Medical Association, expressed particular dissatisfaction with the fee allocated for total obstetrical care, and questioned the concept of establishing maximum fee schedules. It was VOTED to apprise the ACOG Medical Practice Committee that HCMA has set aside its plans for establishing fee schedules, maximum or otherwise, until final court rulings (in Virginia and elsewhere) have been finalized on the question of whether fee setting by any of the professions is or is not in violation of the federal (and even state) anti-trust laws. This decision of HCMA was reported in the HCMA Bulletin of February, 1974, a copy of which will be sent to the ACOG officials. Staff will also apprise ACOG that no CSMS body (House of Delegates, Council or committee) has ever set fees for physicians in Connecticut nor has any intention of doing so. J. Alfred Fabro, Torrington, asked to be recorded as voting "nay" on the latter action.

The second communication reported on "a case of apparent improper use of hospital review committee records in a recent litigation," and brought to the Council's attention the provisions of Section 19-6a of the Connecticut General Statutes (1971, P.A. 811) which assures the confidentiality of the records of such hospital review committees. Noting that the Society had played a major role getting P.A. 811 enacted by the 1971 General Assembly, and had publicized its enactment to the membership and to hospitals at that time, the Council VOTED to have Staff research the statute in question to determine whether amendments have been made since 1971 and to publicize the current statute to hospital medical staffs and the component County Associations (as recommended by the ACOG Medical Practice Committee).

Reports — Fiscal Subcommittee

A series of reports were submitted by the Fiscal Subcommittee and acted on as follows:

(a) *AMA Southeast Regional Mental Health Conference:* It was VOTED to approve a recommendation of the F.S. that Richard T. Kramer, Torrington, a member of the Committee on Mental Health, be authorized to represent the Society at this Conference (Atlanta, Ga., 4/5-6/74) and be reimbursed for usual expenses incurred by his attendance in the amount of not more than an estimated $345.00.

(b) *Request for Program Support — SAMA:* It was VOTED to approve the recommendation of the F.S. that $100 be contributed by the Society in support of a program of the Student American Medical Association which seeks to "extend American hospitality and an understanding of the way of life to foreign medical students who come to the U.S. to study clinical medicine." Contributions are needed to provide matching funds for a U.S. State Department grant of $7,000 awarded to SAMA for program implementation.

(c) *Method of Billing — Special Assessment to Fund Connecticut Medical Institute:* On March 14, 1974, the House of Delegates voted to impose a special assessment of $10 on each dues-paying member of the Society to be used for funding the establishment of the subject Institute. It was VOTED to accept the report of the F.S. which outlined alternative methods of billing for the assessment and it was further VOTED to approve the recommendation of the F.S. that the assessment be included as an identifiable item on the membership dues billing statement for fiscal 1975.

Report — Subcommittee on Preliminary Study of Nominations

It was VOTED to accept for filing the subject published report of the Subcommittee, and, with minor amendment, it was further VOTED to approve the Subcommittee's report as the slate of nominees for officers, committees, etc., to be transmitted to the House of Delegates for election on April 30, 1974.

Report — Ad Hoc Committee on Formation of "Publications Committee"

It was VOTED to accept for filing both verbal and written reports on the deliberations of the Ad Hoc Committee concerning the desirability of forming a "Publications Committee," and it was further VOTED to form a (Council) Advisory Subcommittee on Publications as follows:

Composition:

The President of the Society, Chairman
The President-Elect
The Vice President
The Chairman of the Council
The Chairman of the Fiscal Subcommittee
Two Members of the Council At-Large — Drs. Roch and Backhus
The Editor of the Journal or his appointee
The Executive Director or his appointee

Charge: The Subcommittee shall be involved in all publications of the Society in order to allow for maximum communication within the organization of the Society by the avoidance of duplication and omissions and the selection of the appropriate vehicle for the publication of various types of material. The Subcommittee shall be an advisory body for the Council to the Editor of the Journal and to the Executive Director. The Editor shall remain in full control of all decisions regarding the Journal. The Executive Director shall be in charge of all other publications of the Society. All members of the Subcommittee shall have some interest in Society publications.

Report of the Editor re "Paid Classified Advertisements"

It was VOTED to accept for filing a subject report of the Editor which indicated that a saving of approximately $2,250 in printing costs had been realized by the elimination of the "Physicians' Placement Service" notices from the Journal since April, 1973, and that a net profit of $1,170 had accrued to the Society from paid ads published during the period 4/73-3/74. It was further VOTED to accept for filing a Staff "commentary" on the Physicians' Placement Service, outlining the operation of the Service before and after the discontinuance of the publication of placement notices in the Journal. During discussion of a motion "to return to the concept of allocating 'free' space in the Journal to the Physicians' Placement Service, the details to be worked out between the Editor and the Executive Director," the Council VOTED to refer the motion to the newly-formed Advisory Subcommittee on Publications for pursuance.

PSRO — CMI

Although no verbal or written reports were received from the Committee on Peer Review Systems (for which agenda time had been reserved), the Council VOTED to accept for filing several communications and/or pieces of information concerning PSRO, and, in particular, the modus operandi to be followed in establishing the Connecticut Medical Institute. In a letter addressed to the Chairman, Jerome K. Freedman, NHCMA Associate Councilor, raised several questions regarding whether the Committee on Peer Review Systems can be assumed to have relative autonomy with respect to decision-making in matters pertaining to the establishment of the Institute (bylaws, board of directors' composition, arrangements with other participating agencies, etc.) or whether prior approval by the Council of the decisions arrived at by the Committee would be required before they could be considered official. In general, it appeared to be the consensus of the Council that such step-by-step approval by the Council was neither stated nor implied by the action taken by the House of Delegates on 3/14/74. After lengthy discussion of Dr. Freedman's letter, it was VOTED to request the chairman of the Committee on Peer Review Systems to report to the Council monthly on progress made toward the establishment of the Institute and to consult with the Council before making final commitments, especially with regard to the approval of the Institute's bylaws.

Report — Committee on Accident Prevention and EMS

It was VOTED to accept the report of the Committee for filing, and to approve the report and its recommendation that "the Committee continue its involvement in the categorization of emergency treatment facilities in Connecticut through ongoing participation in the work of the State Council on Emergency Medical Services."

Report — Committee on Cooperation with Medical Schools

It was VOTED to accept for filing a report of the Committee, and to approve the report and its recommendation that "the Council give approval to the implementation of a UConn School of Medicine project which would involve from ten to twelve physicians and ten to twelve medical students in a preceptorship-like program" whereby medical students who have most likely completed the first year would spend a two week period in late June or July "living" with a primary care physician. Funding of the project will be independent of both the participating primary physicians and the Society.

Request for Panelist — Quinnipiac College

It was VOTED to accept for filing notice of a communication received from Quinnipiac College, Hamden, which requested that the Society furnish a speaker to serve on a "reactor panel" that will critique the remarks of Senator Abraham Ribicoff on the subject "National Health Insurance — Solution or Detour?" to be delivered before an audience at the College on Saturday, May 4. It was further VOTED to designate the President, Sidney L. Cramer, Hartford, as the spokesman for the Society at this function.

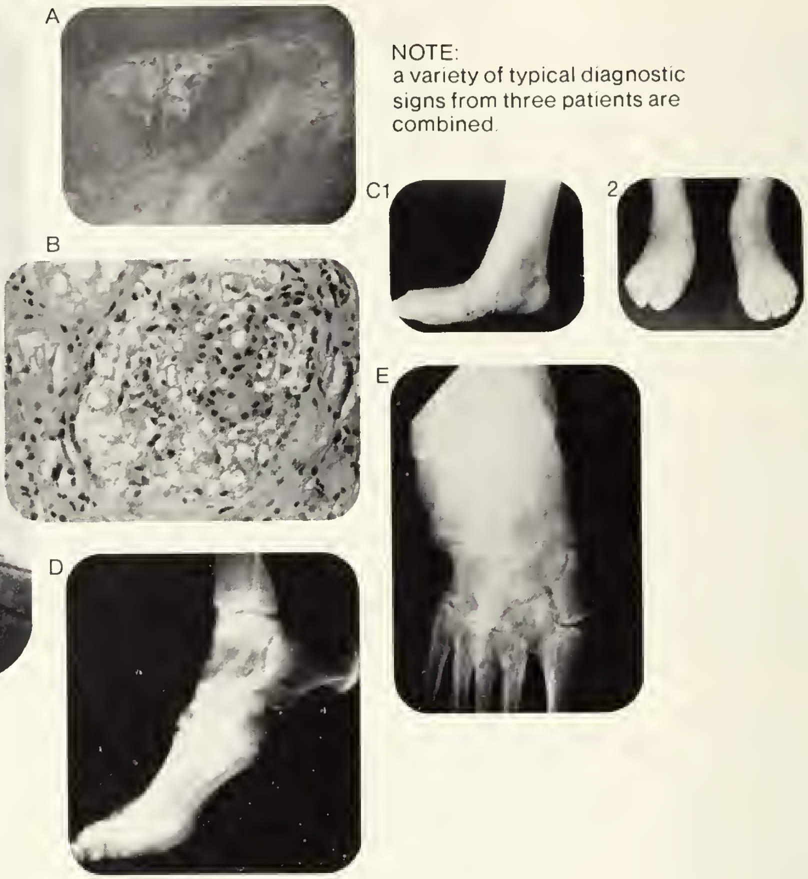
Invitation to Commissioner of Health

It was VOTED to adopt a subject motion as follows: "That the Council extend a cordial invitation to the Commissioner of Health, Douglas S. Lloyd, to be a regular guest at meetings of the Council and the House of Delegates, and assure Dr. Lloyd of the Council's readiness to cooperate with him on matters of mutual interest and concern, either directly or by referral to an appropriate committee of the Society."

N.B.: The foregoing is a summary of the proceedings and actions of the Council on March 21, 1974. Detailed minutes of the meeting are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.

MEDI-SCAN Q&A

What's wrong with this "patient"?*



NOTE:
a variety of typical diagnostic signs from three patients are combined.

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BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits.

School-Age Mothers. Problems, Programs, and Policy by Lorraine V. Klerman, Dr. P. H. and James F. Jekel, M.D., M.P.H. From the Department of Epidemiology and Public Health and the Department of Obstetrics and Gynecology. Yale University School of Medicine. Linnett Books. 152 pp. 1973. $6.00.

Corneal Graft Failure. Ciba Foundation Symposium 15 (new series). Elsevier. Excerpta Medica. North-Holland. 354 pp. Amsterdam, London, New York: Associated Scientific Publishers. 1973. No price given.

The Staphyloccocci. Edited by Jay O. Cohen. 541 pp. Center for Disease Control, Atlanta, Georgia. New York, London, Sydney, Toronto. Wiley-Interscience A Division of John Wiley and Sons, Incorporated. 1973. No price given.

Atlas Of Vascular Surgery. Third Edition. By Falls B. Hershey, M.D., F.A.C.S. and Carl H. Calman, M.D., F.A.C.S. 504 pp., illustrated with drawings by Kathryn Murphy Masterson and William R. Schwartz. Saint Louis: The C. V. Mosby Company. 1973. $35.00.

Family Practice. Edited by Howard F. Conn, M.D., Robert E. Rakel, M.D. and Thomas W. Johnson, M.D. First Edition. 1093 pp., illustrated. Philadelphia, London, Toronto: W. B. Saunders Company, 1973. No price given.

Values In Modern Medicine. By William Shainline Middleton, M.D. 300 pp. Published for the Wisconsin Medical Alumni Association. The University of Wisconsin Press. 1972. $11.50.

Genetics In Medicine. Second Edition. By James S. Thompson, M.D., Department of Anatomy, University of Toronto and Margaret W. Thompson, Ph.D., Departments of Medical Genetics and Pediatrics, University for Sick Children, Toronto. 400 pp. Philadelphia, London, Toronto: W. B. Saunders Company, 1973. No price given.

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Connecticut Medicine

The Journal of the Connecticut State Medical Society

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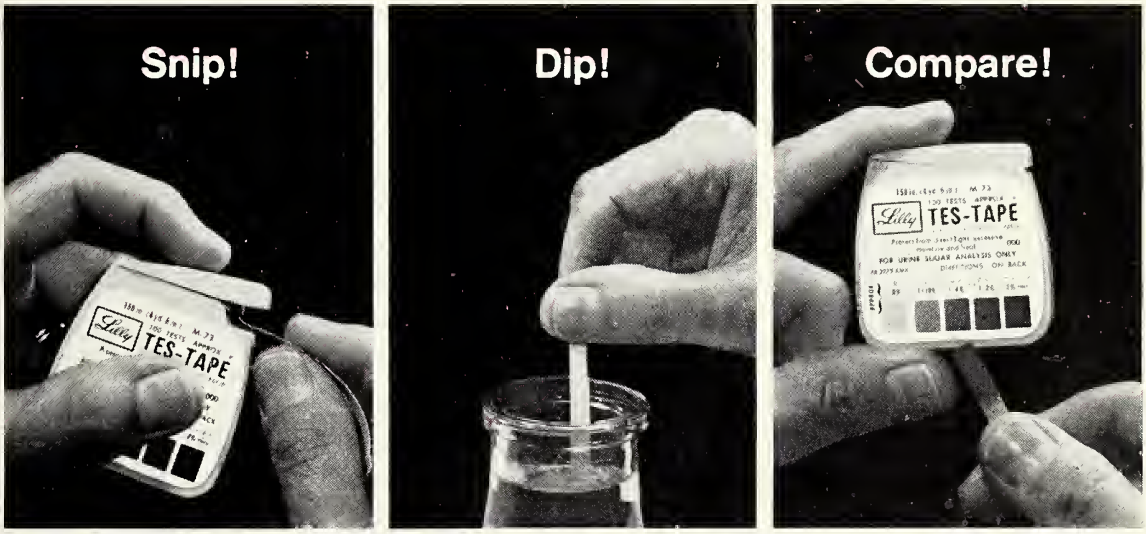

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Connecticut Medicine

JUNE, 1974
Vol. 38/No. 6

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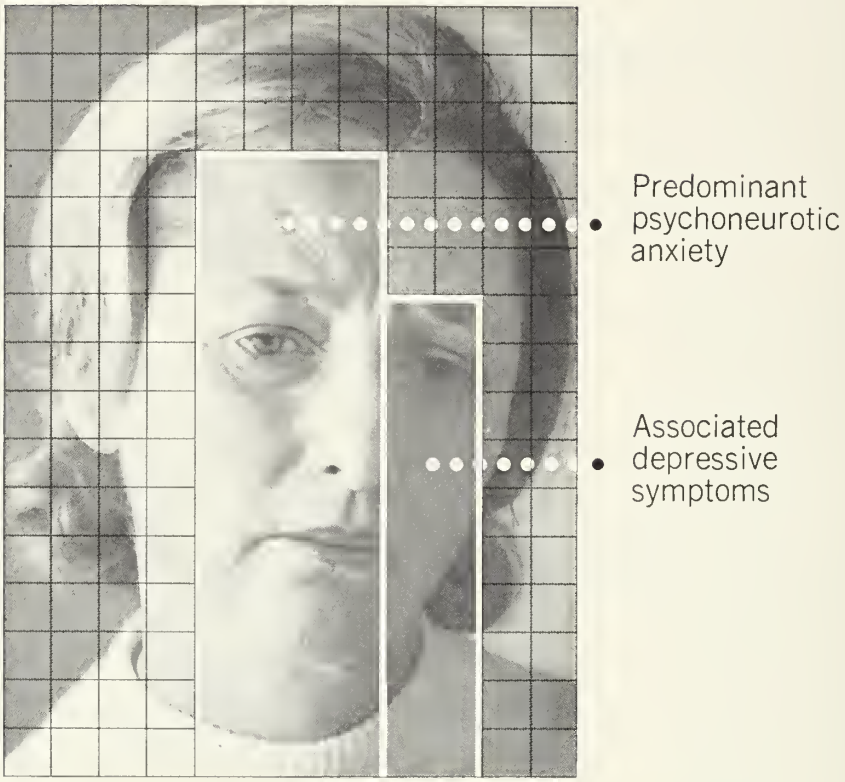
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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

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First Annual Nahum Award Won by Yale Medical Student

Alan B. Silken of 129 York Street, New Haven has been awarded the Louis H. Nahum Memorial Award for Medical Writing according to Dr. Michael R. Sharon, Chairman of the Public Relations Committee of the Connecticut State Medical Society.

Dr. Sharon said the award is presented in honor of the late Dr. Louis H. Nahum of New Haven who for many years was Editor of CONNECTICUT MEDICINE, *the journal of the Connecticut State Medical Society.*

Before his death in 1972, Dr. Nahum was regarded as one of the leading medical writers of our time. His editorial coverage of such subjects as philosophy, art, socio-economics, and the science of medicine gained wide acclaim for him and CONNECTICUT MEDICINE, *Dr. Sharon said.*

Dr. Sharon explained that the Nahum Award is a contest for medical students designed to perpetuate good medical writing in the tradition of Dr. Nahum.

The winner of this first annual Nahum Award received a check for $100 and a suitably engraved plaque at ceremonies conducted during the Connecticut State Medical Society's Annual Meeting April 30. His winning paper is printed below.

Mr. Silken, a medical student at the Yale University School of Medicine has been accepted for a Pediatric Internship at Yale-New Haven Hospital beginning in July of this year.

He was born in New York City in 1948, and was graduated from Calhoun High School in Merrick, Long Island in 1966. He attended New York University and was graduated with a Bachelor of Arts Degree in 1970.

Mr. Silken then entered the Yale University School of Medicine in the fall of 1970.

Judging of the contest was conducted by a panel of four physicians representing the Editorial Committee of CONNECTICUT MEDICINE. *They are: Dr. John L. Meyer of Putnam; Dr. Norman A. Zlotsky of Rockville; Dr. Hans H. Neumann of New Haven and Dr. Robert M. Burd of Bridgeport.*

The Clinical Significance of 2,3 Diphosphoglycerate

Alan B. Silken

Introduction

The successful transition from the intra-uterine environment to the gaseous atmosphere is the first and most important task in the life of the newborn. The problem of oxygenating the tissues is solved in the fetus by direct diffusion across the placental membranes, and transport by fetal hemoglobin. Once the lungs have begun functioning, a major adaptation is required in order to ensure uninterrupted oxygen transport. This is accomplished by adult hemoglobin, which is capable of loading oxygen in the lungs and releasing it to the tissues. In both fetus and adult, oxygen is carried to the tissues by a hematological "conveyor belt" which must be responsive to alterations in oxygen supply and demand.

This paper will review the mechanisms by which red blood cells accomplish the task of delivering sufficient oxygen to supply the needs of the tissues, specific adaptations which occur in response to physiological stresses, and methods of altering oxygen carrying capacity.

Altered oxygen-carrying capacity of the blood may be caused by deficient quantities of hemoglobin, alterations of metabolism within the red cell, and any factor affecting the affinity of hemoglobin for oxygen. Methods of increasing oxygen transport to tissues have primarily consisted of increasing red blood cell mass by means of blood transfusions, and increasing cardiac output. Attempts to alter hemoglobin-oxygen affinity have only recently been investigated. Research done by the author on the pharmacological manipulation of hemoglobin-oxygen affinity will be presented.

The Role of 2,3 Diphosphoglycerate in Oxygen Transport

The Affinity of Hemoglobin for Oxygen

Tissue oxygenation is dependent upon the oxygen content of inspired air, the partial pressure of oxygen (pO2), pulmonary and alveolar ventilation, oxygen diffusion into red cells, cardiac output, blood volume, hemoglobin concentration, and oxygen diffusion from the blood into tissues.

Each of the two sets of chains present in the hemoglobin A molecule (alpha2 beta2) contains a heme prosthetic group, which is the site of reversible binding with oxygen, primarily by hydrophobic bonds. As each heme group becomes saturated with oxygen, the subsequent heme group is more easily saturated at smaller increments of partial pressure of oxygen. Because of this cooperative "heme-heme interaction," 90-100 percent saturation can occur at partial pressures of 60-100 mm. Hg, and oxygen can be readily released to tissues by small changes in tissue oxygen tension.

The affinity of hemoglobin for oxygen is most easily discussed in terms of the hemoglobin-oxygen dissociation curve (Fig. 1). Shifts in the curve from normal indicate alterations in the affinity of hemoglobin for oxygen. Factors which decrease the affinity include decreased blood pH (Bohr effect), increased blood CO2 content, increased ionic concentrations, and increased temperature. Increased affinity is found with increased blood pH and decreased temperature.[1 2]

The Interaction Between Hemoglobin and Organic Phosphates

In 1967 studies by Benesch and Benesch[3] and Chanutin and Curnish[4] showed that red cell concentrations of organic phosphates had significant effects on hemoglobin-oxygen affinity, independent of the effects of temperature and pH. 2,3-DPG and ATP were shown to bind reversibly to hemoglobin and in some way decrease hemoglobin-oxygen affinity. ADP also binds to hemoglobin, but does not show as high binding affinity as 2,3-DPG and ATP.

2,3-DPG has a higher binding affinity for deoxygenated hemoglobin than oxygenated hemoglobin, and does not bind to methemoglobin or cyanomethemoglobin. The significance of this is that 2,3-DPG apparently selectively binds with the deoxy conformation, and stabilizes the molecule such that its affinity for oxygen is reduced.[5] Thus, 2,3-DPG and oxygen effectively compete for the deoxy conformation (Fig. 2). Isolated alpha or beta chains do not bind 2,3-DPG, indicating that binding requires a complete tetramer.[6] 2,3-DPG does bind to beta-4 tetramers (Hemoglobin H) but not to alpha-4 tetramers, although less tightly than to hemoglobin A, implying that the binding site is on the beta chain of hemoglobin.[6]

Beta-4 tetramers maintain a fixed conformation similar to deoxyhemoglobin, thus reducing heme-heme interaction, the Bohr effect, and increasing oxygen affinity. 2,3-DPG binding to beta-4 tetramers does not reduce oxygen affinity, since beta-4 tetramers are apparently in a fixed conformation which is not affected by 2,3-DPG.[6]

While hemoglobin-2,3-DPG binding can cause shifts in the position of the dissociation curve, the sigmoid shape of the curve is retained because of the fact that heme-heme interaction is not altered.[7 8]

The exact binding site on the hemoglobin molecule has been best described by Bunn and Briedl,[8] and supported by the model of Greer and Perutz.[8] Taking into account preferential binding to beta chains when the molecule is in the deoxy conformation, as well as the fact that fetal hemoglobin (without beta chains) shows some reaction with 2,3-DPG, they have proposed that binding occurs at the beta 143 histidine, as well as to the N-terminal amino group of beta and gamma chains. This accounts for the strongest binding to beta chains, some interaction with gamma chains and no binding to alpha chains.

Different 2,3-DPG Interaction with Different Hemoglobins

Much of the work on oxygen affinity of different hemoglobins was done by Bunn and Briehl[8] in 1970. When 2,3-DPG was added to a solution of hemoglobin A, they found oxygen affinity to decrease. Hemoglobin F (alpha2 gamma2) which has an uncharged serine in the gamma chain replacing the H21 histidine, only has a 20 per cent decrease in oxygen affinity.[9]

Fetal hemoglobin shows an interesting adaptive modification. Hemoglobin F has a dissociation curve that is shifted to the left of that of hemoglobin A. This allows a greater amount of oxygen to be picked up at the partial pressure of oxygen present in the placenta. Unloading of oxygen is facilitated by the low partial pressure of oxygen in the tissues.[10]

It would be expected then, that as more and more hemoglobin A is synthesized, and replaces hemoglobin F in the newborn, the affinity for oxygen would decrease. In fact, hemoglobin-oxygen affinity does decrease during the first three months of life,[11] but the decrease does not correlate well with the decrease in hemoglobin F concentrations. During the first week of life, 2,3-DPG concentration rises (although the hemoglobin F concentration does not change), and then returns to birth level during the second and third weeks (Fig. 3).

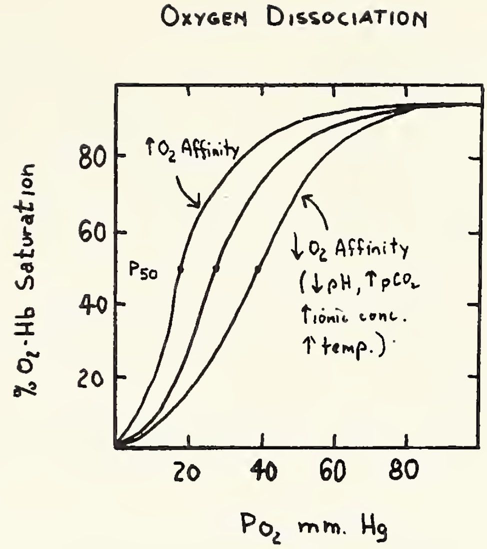


Fig. 1

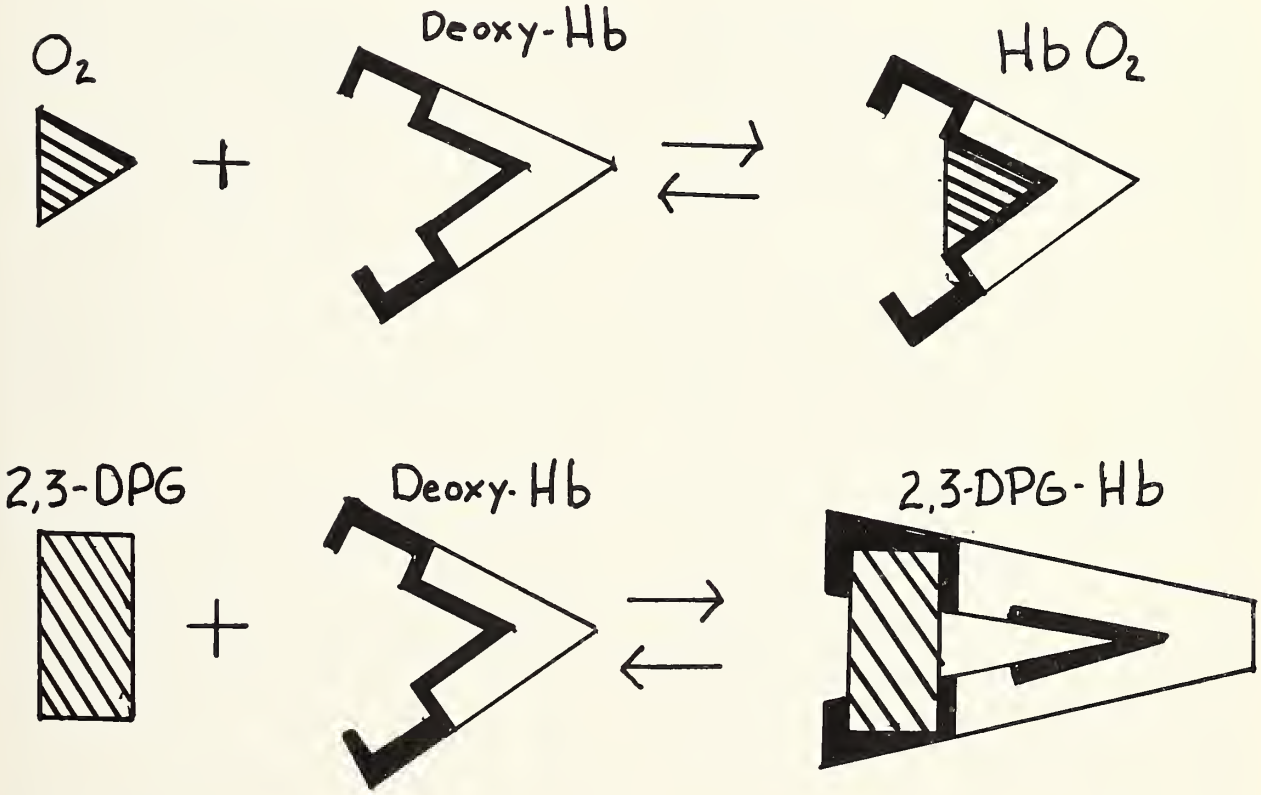


Fig. 2

A schematic representation of how 2,3-DPG and oxygen can compete for a structural conformation of hemoglobin, but at different binding sites. Binding of 2,3-DPG to Deoxy-Hb prevents binding of oxygen to hemoglobin. Binding of oxygen to Hb does not prevent access of 2,3-DPG to its binding site but reduces affinity of Oxy-Hb for 2,3-DPG.

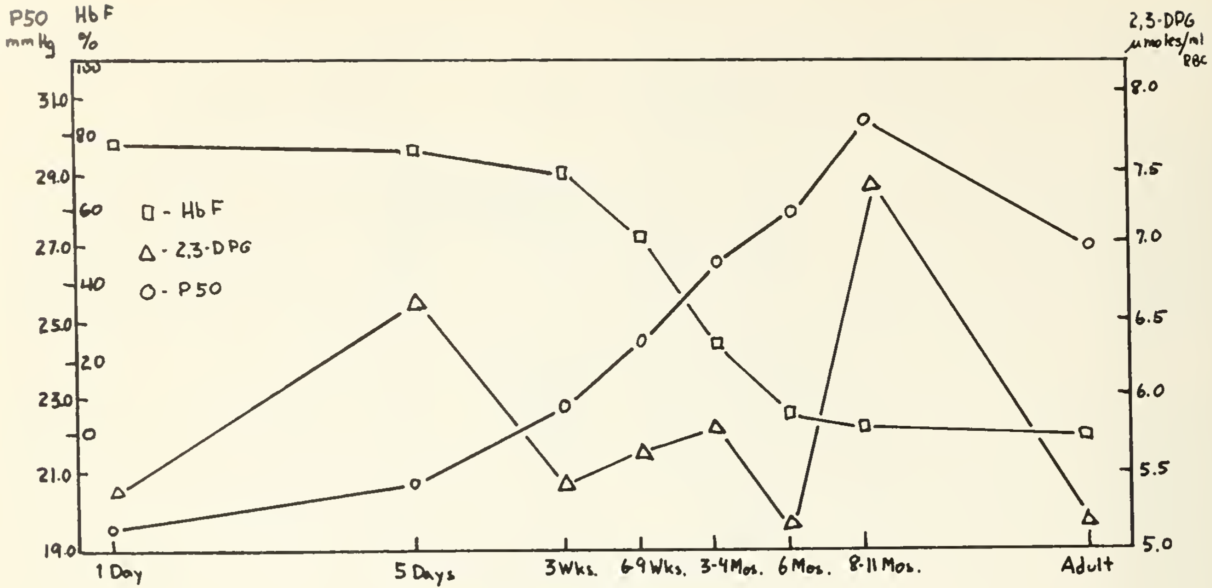


Fig. 3

Relationship between HbF, 2,3-DPG, and P50

P50 rises steadily from birth, while Hb F does not begin to fall until 2-3 weeks after birth, and 2,3-DPG levels rise and then fall during the first three weeks of life. The "Functioning fraction of 2,3-DPG" correlates well with P50, but does not explain the rise in 2,3-DPG during the first week. (Data from: Oski, F.A. and Gottlieb, A.J., The interrelationships between red blood metabolites, hemoglobin, and the oxygen-equilibrium curve, Prog. Hema., 8:33-67, 1971)

In order to explain this, Delivoria-Papadopoulous created the concept of "the functioning or interacting DPG fraction," which is derived by multiplication of the total red blood cell 2,3-DPG content (mumoles/ml RBC) by the per cent hemoglobin A. The functioning DPG fraction shows good correlation with the decrease in hemoglobin-oxygen affinity.[11]

The increase in 2,3-DPG concentration during the first week of life could presumably be a physiological attempt to decrease the high oxygen affinity of hemoglobin F. 2,3-DPG levels decline to normal during the second and third weeks as the hemoglobin A:total hemoglobin ratio increases.

Hemoglobin S solutions show normal oxygen dissociation and interaction with 2,3-DPG. However, in vivo studies of hemoglobin S have shown a shift in the dissociation curve to the right, apparently as a result of intracellular changes, and not as a result of hemoglobin-2,3-DPG interaction [12] Rotman et al[13] have shown oxygen uptake by sickled erythrocytes to be decreased, and 2,3-DPG concentrations in Sickle cells have been shown to be increased, apparently as a physiological response to the decreased cellular oxygen uptake.[14]

The Biosynthesis of 2,3-DPG and its Regulation in Clinical Conditions

Hypoxia Induced Effects

As would be expected in conditions of relatively poor tissue oxygenation, red cell 2,3-DPG levels are found to be increased facilitating oxygen release from hemoglobin. Thus, hypoxia secondary to chronic pulmonary disease,[15] congenital heart disease,[16] chronic liver disease,[16] and decreased cardiac output[17] all have associated elevations in 2,3-DPG. 2,3-DPG levels are elevated in hemolytic anemia,[18] and in association with decreased red cell mass in the absence of low hemoglobin or hematocrit.[19]

In patients with splenomegaly, 2,3-DPG levels are not elevated as one might expect, presumably due to accelerated 2,3-DPG degradation and impaired red cell glycolysis secondary to erythrocyte sequestration and the acid environment of the enlarged spleen.[20]

The mechanism of hypoxia induced elevations in 2,3-DPG is not entirely elucidated, but much work has been done in this area. Astrup[21] and Duhm and Gerlach[22] have proposed that intracellular pH is the primary controlling factor in 2,3-DPG synthesis, and the release from product inhibition which takes place in the presence of excess deoxyhemoglobin is of minor importance. They propose that with deoxygenation, intraerythrocytic pH rises as a result of hydrogen ion absorption by deoxyhemoglobin. At higher pH levels, phosphofructokinase is activated, allowing increased glycolysis and 2,3-DPG synthesis. At the same time, increased concentrations of deoxyhemoglobin are available for 2,3-DPG binding, and any degree of product inhibition present can be overcome.

The Effect of Inorganic Phosphate

Lichtman et al[23] and Travis[24] found decreased red cell glycolysis, decreased 2,3-DPG and ATP levels and increased hemoglobin-oxygen affinity caused by hypophosphatemia. Lichtman[25] also studied uremic patients with hyperphosphatemia and as expected, found them to have elevated ATP and 2,3-DPG levels. These results correlate well with the study done by Card and Brain,[26] who found a closer correlation between serum phosphate levels and total organic phosphate levels than 2,3-DPG levels alone. They studied 62 children, and proposed that the "normally elevated" plasma phosphate level of children causes elevated red cell organic phosphates, a right shifted dissociation curve, and accounts for the resulting "physiologic anemia of childhood."

Oski and Gottlieb[27] have concluded that "the red cell 2,3-DPG level in vivo appears to be controlled by a number of factors which include: the pH, the ratio of deoxy to oxy hemoglobin, the serum inorganic phosphate concentration, and the level of plasma oxidants."

Alterations in Red Cell Metabolism

2,3-DPG concentrations have also been found to be elevated in hyperthyroidism.[28] The mechanism of this increase is not related to hypoxia, but rather either to increased tissue consumption of oxygen, or direct stimulation of enzymes involved in 2,3-DPG synthesis.[29] Snyder and Reddy[30] found that triiodothyronine directly stimulates diphosphoglycerate mutase, the enzyme which catalyses the conversion of 1,3-DPG to 2,3-DPG (Fig. 4).

Since 2,3-DPG synthesis is a branch of the glycolytic pathway, metabolic alterations in glycolysis will affect 2,3-DPG synthesis. In subjects with metabolic defects proximal to 2,3-DPG, such as red cell hexokinase or glucose isomerase deficiency, low levels of 2,3-DPG and an associated increase in hemoglobin-oxygen affinity will be found.[16] In subjects with pyruvate kinase deficiency, which would cause a block distal to 2,3-DPG synthesis, high levels of 2,3-DPG are found.[31] Interestingly, these individuals (PK deficient) require a small increase in cardiac output to tolerate the same amount of exercise that requires doubling of cardiac output in a hexokinase deficient patient.[32]

Nelson and Benson[33] studied twenty Down's Syndrome patients and found 2,3-DPG levels to be significantly higher than in twenty controls. A possible mechanism of this increase is a marked increase in the activity of erythrocyte phosphofructokinase found in Down's Syndrome.

Guest and Rapoport[34] in 1948 reported decreased 2,3-DPG levels in comatose diabetics. In 1972, Ditzel[35] studied diabetics recovering from acidosis and found that low 2,3-DPG levels in patients who were acidotic returned toward normal as their acidosis was corrected.

Ditzel reported that hemoglobin-oxygen dissociation curves in ambulatory diabetics was shifted to the left sufficiently enough to cause 30 per cent less oxygen release than in normal controls. In non-acidotic diabetics, Ditzel bases the mechanism of low 2,3-DPG levels on chronic hyperglycemia. With excess glucose, sorbitol and fructose concentrations in red cells increase[36] and the utilization of NADPH in the conversion of glucose to sorbitol drives the hexose monophosphate shunt. As glycolysis via the Embden-Myerhof pathway declines, 2,3-DPG concentrations fall. However, three other separate researchers were unable to reproduce Ditzel's findings, and reported no significant change in red cell 2,3-DPG concentrations in well controlled diabetics.[37] [38] [39]

The Pharmacological Manipulation of 2,3-Diphosphoglycerate

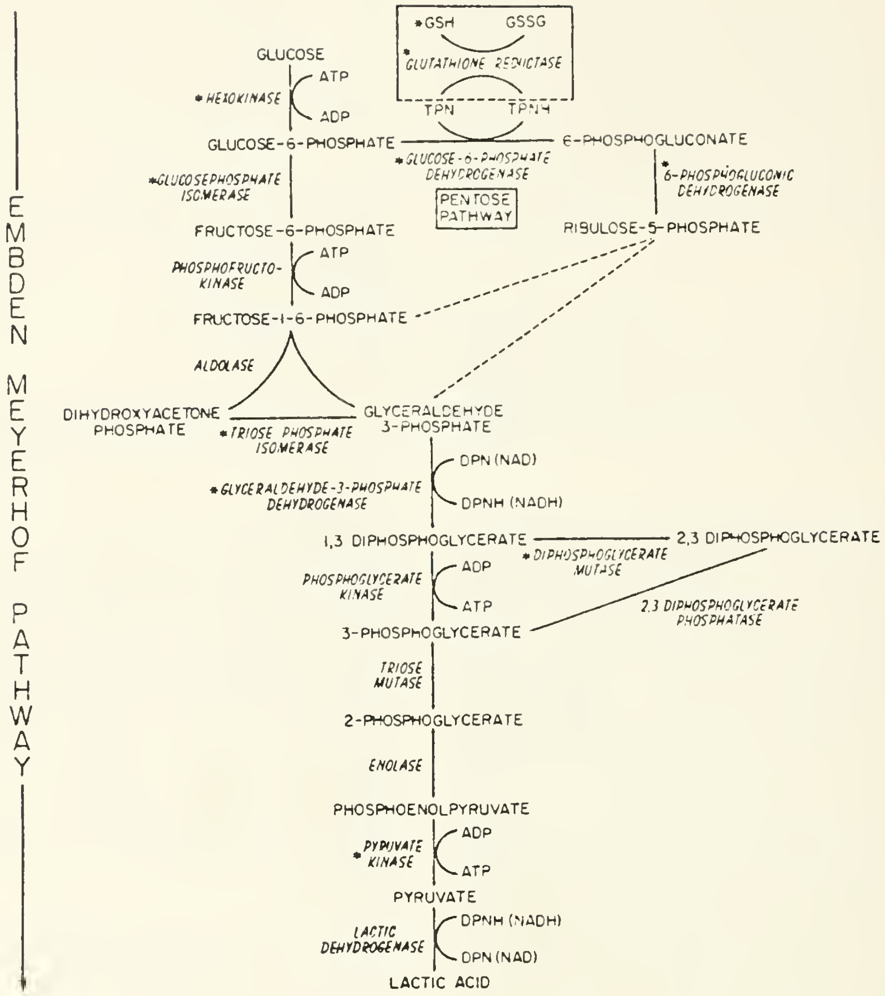
A. Inosine

In 1969, Bunn et al[40] were able to relate the progressive increase in hemoglobin-oxygen affinity during the first days of storage of blood in acid-citrate-dextrose solutions at 4° C to a decline in red cell levels of 2,3-DPG and ATP. This decline was not observed in blood stored in citrate-phosphate-dextrose solution,[41] nor was the 2,3-DPG decline as significant if inosine is added to the solution, if the pH is maintained at normal levels, or if the hemoglobin is in the deoxygenated state.[42] If the blood is frozen, 2,3-DPG levels can be maintained for long periods.[43]

Oski et al[44] found they could restore 2,3-DPG levels to normal in 2,3-DPG depleted blood by adding inosine, pyruvate and phosphate. They noted that this effect was related to the purine nucleoside phosphorylase activity of different species. In dogs, which have no PNP activity, there was no rise in 2,3-DPG levels.

In a follow-up study, Sugerman et al[45] found a 51 per cent increase in 2,3-DPG concentration in Rhesus monkeys six hours after an infusion of inosine, pyruvate and phosphate. Controls infused with saline had no rise in 2,3-DPG. They also found that solutions of inosine alone caused an 18 per cent increase in 2,3-DPG levels. The mechanism of the rise is the conversion of inosine to hypoxanthine and ribose-1-phosphate.[46] Ribose-1-phosphate can be converted to ribose-5-phosphate, which in turn enters the hexose monophosphate shunt, and via transketolase and transaldolase, can be converted to fructose-6-phos-

Fig. 4


EMBDEN MEYERHOF PATHWAY
*GSH
GSSG
*GLUTATHIONE REDUCTASE
TPN
TPNH
GLUCOSE
ATP
*HEXOKINASE
ADP
GLUCOSE-6-PHOSPHATE
6-PHOSPHOGLUCONATE
*GLUCOSE-6-PHOSPHATE DEHYDROGENASE
PENTOSE PATHWAY
*6-PHOSPHOGLUCONIC DEHYDROGENASE
*GLUCOSEPHOSPHATE ISOMERASE
FRUCTOSE-6-PHOSPHATE
RIBULOSE-5-PHOSPHATE
PHOSPHOFRUCTO-KINASE
ATP
ADP
FRUCTOSE-1-6-PHOSPHATE
ALDOLASE
DIHYDROXYACETONE PHOSPHATE
*TRIOSE PHOSPHATE ISOMERASE
GLYCERALDEHYDE 3-PHOSPHATE
*GLYCERALDEHYDE-3-PHOSPHATE DEHYDROGENASE
DPN (NAD)
DPNH (NADH)
1,3 DIPHOSPHOGLYCERATE
2,3 DIPHOSPHOGLYCERATE
*DIPHOSPHOGLYCERATE MUTASE
PHOSPHOGLYCERATE KINASE
ADP
ATP
2,3 DIPHOSPHOGLYCERATE PHOSPHATASE
3-PHOSPHOGLYCERATE
TRIOSE MUTASE
2-PHOSPHOGLYCERATE
ENOLASE
PHOSPHOENOLPYRUVATE
*PYRUVATE KINASE
ADP
ATP
PYRUVATE
LACTIC DEHYDROGENASE
DPNH (NADH)
DPN (NAD)
LACTIC ACID

phate and glyceraldehyde-3-phosphate. The role of the pyruvate in the solution is to allow for the oxidation of NADH to NAD, which is necessary for the conversion of G-3-P to 1,3-DPG.

The use of inosine in man would require simultaneous administration of a potent uricosuric agent, such as allopurinol, since in the absence of uricase, large amounts of uric acid and xanthine, breakdown products of hypoxanthine, would accumulate.

B. Propanolol

It had been observed by Pendleton[47] in 1971 that propanolol shifts the hemoglobin-oxygen dissociation curve to the right, and in fact, this may be the mechanism by which propanolol is beneficial in angina pectoris. Oski et al[48] found that propanolol does not alter total red cell 2,3-DPG content. Nor was he able to shift the dissociation curve when propanolol was added to pure solutions of hemoglobin or 2,3-DPG depleted blood. He did find that about 30 per cent of the 2,3-DPG was "bound" to the red cell internal membrane, and therefore, unavailable for interaction with hemoglobin. In propanolol treated red cells, 100 per cent of the 2,3-DPG is in the "unbound" fraction, which would account for the right shifted dissociation curve. He also noted that epinephrine prevented the unbinding, implying that the membrane is responsive to vasoactive agents. Since propanolol is a beta adrenergic blocking agent, Oski speculates that there may be adrenergic receptor sites on red cell membranes. Oski's findings have recently been disputed by Brann and Newman,[49] who have not been able to find any membrane-bound 2,3-DPG in erythrocytes.

C. Steroids

In 1972, Parker et al[50] reported significant elevations of 2,3-DPG in six patients with chronic renal failure treated with testosterone for 12 weeks. They found no alterations in serum inorganic phosphate levels to account for this rise, and suggested only that androgens may have a direct metabolic effect on red cells, or an indirect effect by altering oxygen consumption.

Bauer and Rathschleg-Schaefer[51] had previously demonstrated that in vivo administration of aldosterone and cortisol to rabbits results in shifts in the hemoglobin-oxygen dissociation curve to the right, but they did not study 2,3-DPG levels. They concluded that the steroid action was not due to a direct effect on red cells, since their results were not reproducible in invitro red cell experiments.

In a recent abstract, Desai et al[52] reported significant increases in 2,3-DPG levels in Rhesus monkeys after a four week administration of testosterone and 11 keto-pregnanolone, but no increases after estradiol administration. They reported no change in hemoglobin, red cell mass, or serum inorganic phosphate levels. They did not study shifts in the dissociation curve.

A recent study was done by the author,[53] in order to determine the effect of prednisone administration on 2,3-DPG levels. In patients with nephrotic syndrome receiving chronic prednisone therapy, 2,3-DPG levels were found to be significantly higher (5162+213 nmoles/ml RBC) than in control subjects with nephrotic syndrome not receiving prednisone. (4527+146) There was a significant correlation between dose and 2,3-DPG level. In patients with acute leukemia in remission undergoing prednisone and vincristine reinduction, a 21 per cent increase in 2,3-DPG levels was observed 3 weeks after starting prednisone, which returned to pre-treatment levels 2-3 weeks after therapy was stopped (Fig. 5). Three control patients treated with vincristine alone demonstrated no change in their 2,3-DPG levels. As in the study by Desai et al, no change in hemoglobin or serum inorganic phosphate levels were observed.

Summary

The significance of the role of 2,3-DPG in oxygen transport has been firmly established. In the past six years extensive work has shown that many clinical conditions are characterized by alterations in red cell 2,3-DPG concentrations. While at present 2,3-DPG levels are not generally used as a diagnostic test, it is not inconceivable that determinations of 2,3-DPG in conditions such as chronic lung disease, cyanotic heart disease, and anemia may be valuable in assessing the severity of the disease. Certainly, 2,3-DPG levels are an important index of the oxygen carrying capacity of stored blood.

Pharmacological restoration of 2,3-DPG in depleted cells has been successful in stored blood. While much research must be done in vivo, we can look forward to the development of therapeutic regulation of 2,3-DPG.

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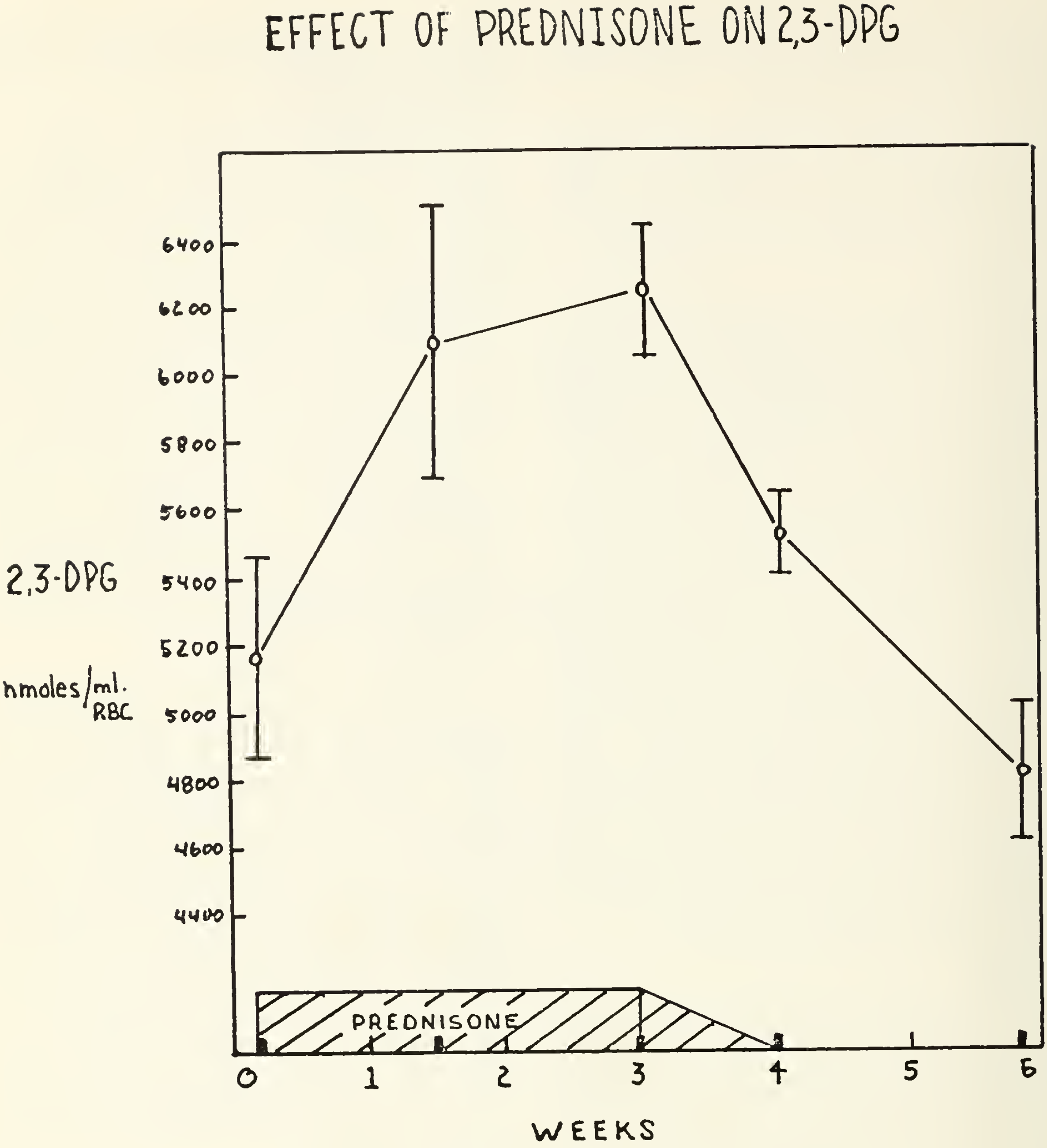

Fig. 5

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The Diagnosis and Medical Management of Pulmonary Embolic Disease

Arthur A. Sasahara, M.D.

Introduction

The fact that this conference on thromboembolism reflects the growing awareness of the problem which is a paradox: that as medical progress is made, the incidence of thromboembolism is rising. It may be due to prolonged bedrest, an older and sicker population, and more complex operations. If one considers both the primary and secondary or contributory causes of death, then pulmonary embolism is the commonest cause of death in the hospital. It certainly is the most common cause of pulmonary death, as well as the most common cause of sudden death in the hospital.[1]

In assessing the impact of any disease, one could generally count the number of sign-out diagnoses. In 1966, when 27.4 million patients were hospitalized, the sign-out diagnoses included 182,000 with deep vein thrombosis and 106,000 with pulmonary embolism. Most investigators now feel that pulmonary embolism is greatly underdiagnosed. Biometricians now calculate the total numbers afflicted by multiplying prevalence of disease by total number of patients hospitalized. Based on reasonable estimates that fatal pulmonary embolism occurs in 5 patients per 1,000 in-patients and non-fatal pulmonary embolism occurs in 10 patients per 1,000 in-patients, it can be calculated that about 142,000 patients suffer fatal pulmonary embolism and about 285,000 patients suffer non-fatal pulmonary embolism. The disparity between these figures and the sign-out diagnosis figure of 106,000 may well reflect our inability to make the diagnosis of pulmonary embolism. With this in mind, I would like to re-examine the clinical picture and assess the diagnostic studies in use today.

Clinical Picture

In a group of 100 patients with pulmonary embolism, proven by scans and selective pulmonary angiography, the most common presenting complaint was dyspnea (approximately 86%) and cough (70%)[2] If one considers those symptoms more characteristic of pulmonary embolism, such as pleural pain or hemoptysis, they were present in less than half the patients. Similarly, if one examines the physical findings, non-specificity seems to be the rule. The most common finding was a loud pulmonary second sound which may be difficult to assess at times. Next, tachypnea, rales and tachycardia in over half the patients, fever, generally up to 101, rarely above 103, and finally gallop rhythm, cyanosis, and pericardial friction rub. Those physical findings which are more suggestive of pulmonary embolism, e.g., thrombophlebitis, pleural friction rub and chest splinting were observed in only one-third or less of the patients. The clinical picture, therefore, is non-specific in the majority of patients and could be part and parcel of any other cardiorespiratory disease.

Diagnosis

Laboratory

Unfortunately, there is still no laboratory test diagnostic of pulmonary embolism.[2] The biochemical triad of bilirubin and LDH elevation plus a normal SGOT has proved disappointing in diagnosing pulmonary embolism. Only 20% of patients in our series of proven pulmonary embolism showed this combination. Most distressing was the fact that in clearly 20+%, the LDH, SGOT and serum bilirubin on serial determinations did not vary from the normal range. Our current belief, therefore, is that no diagnostic or therapeutic decision should be made on the results of the enzyme or bilirubin values.

The white count may be of value, particularly in the differential diagnosis of a pulmonary infiltrate. Generally in pneumonia, one expects a greater inflammatory response and most patients with pneumonia and an infiltrate on the chest film will have a white count greater than 15,000; whereas, in pulmonary infarction, the white count tends to less than 15,000. In addition, 70% of our patients with pulmonary embolism and/or infarction had a normal white count and a normal differential study.

Chest X-ray

Although a great deal of information has been published concerning radiographic findings in pul-

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DR. ARTHUR A. SASAHARA, Chief, Cardiopulmonary Section, Veterans Administration Hospital, West Roxbury, Mass., Associate Professor of Medicine, Harvard Medical School, Boston, Mass.

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monary embolism, there has been no consensus regarding frequency of diagnostic changes. Several years ago when the NIH sponsored a 14 Center Trial in which Urokinase was compared with heparin in pulmonary embolism, there was opportunity to examine chest X-ray findings from a large number of patients with PE. Two findings were noted: consolidation and high diaphragm, observed in 41% of patients. Both findings, of course, were observed in the affected lung.[3]

ECG

The electrocardiogram is a sensitive but not very specific indicator of PE. Aside from the well-known McGinn-White pattern of acute cor pulmonale, the so-called S1-Q3-T3 pattern, most of the findings are non-specific. A more useful ECG pattern is acute right ventricular strain, manifested by T-wave inversions over the right precordial leads. This pattern generally does not occur in patients with respiratory failure due to chronic obstructive lung disease: but it did occur in approximately 25% of our patients with pulmonary embolism.[4]

Arterial Oxygen Tension

Several years ago, there was an excellent article in the *Annals of Internal Medicine* by Dr. Dalen's group at the Peter Bent Brigham Hospital, citing the importance of arterial oxygen tension measurements in helping diagnose pulmonary embolism.[5] Because in their patients with pulmonary embolism the arterial PO2 was less than 80 mm Hg, they suggested that this might be a useful clinical aid, i.e. in the clinical situation where pulmonary embolism is suspected, if the arterial PO2 is over 80, pulmonary embolism is unlikely to be present. However, because there are patients with pulmonary embolism who have arterial PO2 values greater than 80, the rule was not very useful. From the recent NIH Urokinase-Pulmonary Embolism Trial, 12% of patients with pulmonary embolism had an arterial PO2 greater than 80.[3] Therefore, the rule should be modified to state that in the clinical context of pulmonary embolism, if the arterial PO2 is greater than 90, then it is very unlikely that PE is present. This assumes that the PO2 values are carefully obtained, i.e. the oxygen electrode is calibrated prior to each analysis. Otherwise the PO2 may vary by 10 mm Hg.

Deep Vein Assessment

Because only pulmonary angiography is diagnostic for PE, the search continues for less invasive and useful procedures. In our own institution, we have been investigating a means to test for patency of the deep veins of the legs. With the use of radioactive fibrinogen, it has become apparent that the source of pulmonary embolism in the vast majority of patients is the deep veins of the legs.[6] This suggests that we have been overemphasizing the importance of the right heart and pelvic veins as sources of emboli. The exception may be in those patients who have pelvic disease or have had some manipulation or procedure in the pelvis. Previously, Sevitt found 100% correlation between pulmonary embolism at the autopsy table and deep vein thrombosis.[7] Since radioactive fibrinogen has not been released for use in this country, presumably because pooled fibrinogen carries a hazard of viral hepatitis, we have had to look for other means to detect thrombosis of the deep veins of the legs. At best, bedside assessment of the patency or the presence of clots in the legs is very poor. Probably only 40% of patients with deep vein thrombosis will have any symptoms or signs whatever: some warmth, disparity in leg diameter, or pain. The majority will be totally asymptomatic, and therefore not diagnosable at the bedside. However, our new test, impedance phlebography, developed by Dr. H. B. Wheeler is capable of detecting deep vein thrombosis.[8] The test is simple and non-invasive. Its principle is based on the changing voltage required to pass a small current between two electrodes. The changing voltage is inversely proportional to limb venous blood volume. Since blood is an excellent conductor of electricity, if the blood volume in the limb increases, the resistance decreases and if limb venous blood volume decreases the resistance increases. If a cuff around the thigh is inflated to approximately 40 cm of water and if the deep veins are patent, limb venous blood volume increases and resistance and voltage decrease, and when the cuff is deflated limb venous blood volume decreases and therefore resistance and voltage increases. A normal phasic type of tracing is therefore obtained. If the deep veins are occluded by thrombi, limb venous blood volume does not change very much resulting in a flat tracing. The correlation with contrast phlebography has been excellent. In our patients with PE, 95% had an abnormal impedance (IPG) study, indicating deep vein thrombosis. Our data make it possible to state that in the patient with *suspected* pulmonary embolism, if the IPG is abnormal, indicating leg vein thrombosis, 90% will have PE by angiography. Similarly, if the IPG is normal, 9 of 10 patients will not have pulmonary embolism. These are preliminary observations. We think further data will be necessary from a large series, but for the moment, it seems to be reasonable and promising as a diagnostic aid for pulmonary embolism.

With this array of tests, one needs some guidelines to know when to treat a patient for pulmonary embolism. First, we need to widen the base by which we suspect PE. Because of the nonspecificity of symptoms (dyspnea, cough) and signs (rales, tachycardia, loud P2), more specific studies need to be employed. Only a minority of patients with pulmonary embolism present with hemoptysis, pleural pain, friction rub and thrombophlebitis.

One practice which has proved useful is that on suspicion of pulmonary embolism, an intravenous bolus of heparin is administered. This is very beneficial when some time is required to complete the diagnostic procedures. If the diagnosis is confirmed, treatment will have been begun. On the other hand if the diagnosis is not confirmed, the heparin may be promptly discontinued.

Lung Scanning

Lung scanning, one of the two direct graphic studies is, by virtue of its simple non-invasive nature, the best screening test for PE.[9] With improved instrumentation and radiopharmaceuticals, virtually all sick patients can be scanned. To serve as an effective screen, multiple views, anterior, posterior, right and left laterals, must be obtained. In young patients without history or findings of prior cardiopulmonary disease, a compatible story for PE and an abnormal lung scan with high probability lesions may be all that one needs to begin therapy. In this instance, heparin therapy may be begun. On the other hand, when dealing with older populations, the lung scan may be inadequate, primarily because of the preponderance of underlying cardiopulmonary disease. In this situation, because chronic obstructive lung disease may also cause an abnormal lung scan, a selective pulmonary angiogram may be necessary to separate out lesions. In interpretation, the scan should be read as either normal or abnormal. When abnormal the lesions should be assessed for low, medium or high probability of being caused by pulmonary embolism.

Treatment

Heparin is still the mainstay of current therapy for thromboembolism. Thrombolytic therapy, although effective, is not yet readily available.

New observations from the Urokinase Pulmonary Embolism Trial have been made regarding the relationship between bleeding and heparin therapy. In those patients who received heparin and had bleeding complications, the level of anticoagulation, assessed by the Lee-While clotting time, was excessive, i.e. over 60 minutes.[3] When the Lee-While clotting time was less than 30 minutes no bleeding complications occurred. On the other hand, when anticoagulation was inadequate, i.e. Lee-While clotting time less than 20 minutes or a prothrombin time less than 18 seconds, the incidence of recurrent pulmonary embolism was significantly greater than in those who were adequately anticoagulated. Again, from the NIH Multicenter Trial, 35% of patients who were inadequately anticoagulated had recurrent pulmonary embolism, whereas only 16% of those patients who were adequately anticoagulated had recurrences. Ideally, we would consider as adequate a Lee-While clotting time between 25 and 35 minutes or a prothrombin time of about 25 seconds. These data indicate that if the patient is excessively anticoagulated, bleeding complications are apt to occur, whereas if inadequately anticoagulated, recurrent thromboembolism is likely. These data may also be interpreted as favoring a continuous method of heparin administration as the most effective and safest way

Thrombolytic Therapy

Although straptokinase has been available for some 30 years, the inability to obtain a pure preparation has confined its use to limited clinical investigations. Recently, however the availability of Urokinase, a human plasminogen activator, has resulted in an intensive investigation of its value in pulmonary embolism. Because Urokinase is of human origin it is non-antigenic and because trace contaminants have been adequately removed, the drug is non-pyrogenic. Urokinase, as an activator, converts the natural plasminogen to plasmin, the active lytic fraction, which lyses fresh fibrin clots. The important qualification in Urokinase effectiveness is that it must be administered in the presence of fresh fibrin clots. Clots older than 10 days generally will not respond well to lysis.

In the 160-patient, Multicenter Trial, sponsored by the NIH, the efficacy of either heparin or Urokinase was compared in a randomized, modified double blind protocol.[3] Approximately 80 patients received heparin and another 80 patients received Urokinase followed by heparin. Drug efficacy was assessed by pre and post-treatment pulmonary angiography, hemodynamic measurements and serial perfusion lung scans. By angiography, a significantly greater amount of clot resolved during the treatment period in those patients receiving Urokinase as compared to those receiving heparin. This was particularly significant in those with massive pulmonary embolism. When the hemodynamic values were compared, six of the eight parameters measured returned significantly more towards normal in those receiving Urokinase than in those patients receiving heparin. These parameters included central venous pressure, right ventricular systolic pressure, right ventricular end-diastolic pressure, pulmonary artery mean pressure, pulmonary vascular resistance and arterial oxygen tension. The arterial PO2 during the first 24 hours of therapy increased an average of 9 mm Hg in those receiving Urokinase as compared to a drop of 1 mm in those patients receiving heparin.

The third, objective means to assess drug therapy were the serial lung scans. For the group as a whole, there was significantly greater reperfusion during the first 24 hours in the Urokinase group. However by the fifth day and thereafter, there was equal reperfusion. Again, in the massive pulmonary embolism group, there was striking reperfusion in the Urokinase group as compared to the heparin group.

A number of complications in the form of bleeding occurred in both groups. Presumably, these complications occurred in response to the invasive nature of the protocol. All patients had indwelling pulmonary arterial catheters as well as arterial catheters or in some patients frequent arterial punctures. From these invasive sites, the incidence of bleeding was significantly greater in the Urokinase group, whereas in the non-invaded areas, there was no difference in the incidence of bleeding between the two groups. No mortality difference was anticipated in this Trial nor was one observed. Overall the mortality was 8.3% which is in keeping with previously published figures for treated pulmonary embolism. The highest mortality was in those patients who developed hypotension following submassive embolism. All of these patients had underlying severe cardiopulmonary disease and could not withstand the added stress of pulmonary embolism. In those patients with hypotension due to massive embolism, the mortality was significantly less at 18%.

The implications of this Trial are that thrombolytic therapy is feasible, relatively safe and highly effective in dissolving fresh clots in the pulmonary circulation. Although the drug is not available for routine use due to its prohibitive cost and short supply, a new kidney tissue culture method is in the offing. This new method has yielded a high grade, potent and probably identical Urokinase preparation. When the drug does become economically available for use, it will become the drug of choice in the treatment of thromboembolism.

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COMPULSORY ASSESSMENTS OF MEDICAL STAFF

Compulsory assessments, that is, assessments which if not paid, would automatically cause doctors to lose staff membership, are not in the best traditions of ethical practice. It is not proper to condition medical staff membership on compulsory assessments for any purpose. — *Opinions and Reports, Judicial Council of the AMA.*

Surgical Treatment of Pulmonary Embolism and the Complication of Deep Vein Thrombus

M. Terry McEnany, M.D.

It is appropriate that any discussion of the surgical implications of pulmonary embolism follow the excellent exposition of the diagnosis and medical treatment of pulmonary embolism, as done by Doctor Sasahara. Deep vein thrombosis and pulmonary embolism basically are not a surgical disease; they are frequently associated with surgical procedures, but effective treatment is best provided by the means previously discussed. There are, unfortunately, persistent references in the current surgical literature to the continued use of pulmonary embolectomy in all cases of massive pulmonary embolism.[1] The exquisite studies performed by Doctor Sasahara and his colleagues have repeatedly shown that the majority of patients who have major occlusion of their pulmonary vasculature are able to survive without embolectomy.[2,3]

The literature regarding massive pulmonary embolism is quite skewed, for several reasons. The largest series have generally been retrospective post mortem series while much of the valuable clinical information has come from studies performed in referral centers, where a high degree of patient self-selection has tended to color the resultant data. Donaldson and associates at the Massachusetts General Hospital[4] reported that only 28% of patients dying from massive pulmonary embolism survived more than one hour, and 17% lived more than six hours, only to succumb within the first week. Gifford and Groves[5] expanded on this theme in their retrospective examination of the record of 101 successive pulmonary embolism deaths at the Cleveland Clinic. In trying to determine how many of these patients would have been treatable, they noted that 73% died without any hope of having the embolus removed—44 died within one hour of the onset of symptoms (about half of these were either moribund or dead when first seen by physician or nurse), 26% died without any abrupt alterations in their clinical course to hint the presence of pulmonary embolism, and 3% died while under anesthesia for totally unrelated pathological process. Of the remaining 28 patients, the authors felt that only six would have been amenable to pulmonary embolectomy — the diagnosis was not suspected in five; seven were suffering from incurable malignancy; and four had irreversible CNS damage. They state that an additional six patients were "prohibitive operative risks" and were not considered for surgical intervention for that reason. This decision is a philosophical one. If a patient exhibits the clinical criteria for pulmonary embolectomy and embolectomy is not performed, they will most surely die, as those six patients obviously did.

The feasibility of extracting thromboemboli from the pulmonary arterial tree was first mentioned by Trendelenberg in 1908,[6] when he described three futile attempts to remove massive emboli from the pulmonary artery through a parasternal incision. One of these patients survived 1½ days before expiring from mammary artery hemorrhage. Kirschner, a protege of Trendelenberg, performed the first successful embolectomy in 1924.[7] These two reports led to more frequent unsuccessful attempts at embolectomy which decreased in the 1940's because of uniformly bad results. Finally, in 1958, Steenberg[8] performed the first successful Trendelenberg procedure in this country. Allison[9] in England introduced the adjunctive use of hypothermia and inflow occlusion (clamping of both vena cavae from within the pericardium) in 1960 and met with some limited success. The first successful pulmonary embolectomy utilizing cardiopulmonary bypass was performed in 1964 by Sharp.[10] In the subsequent 12 years, this has been the major method of surgical extraction of massive pulmonary emboli.

Several important technological advances have made the increasing number of successful embolectomies more feasible. The introduction of disposable oxygenators requiring only a crystalloid priming volume has made cardiopulmonary bypass a "shelf item" not reliant upon an active blood bank with ready access to fresh blood.[11] This type of oxygenator and pumps can be battery driven so they can be taken to the patient's bed; femoral venous and arterial cannulation can be performed under local anesthesia (femoral-femoral bypass) and this partial bypass can be used to support the patient during angiography in transit to the operating room, if the clinical course so demands.[12] The ease with which this can be done in some centers led to a

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DR. M. TERRY McENANY, Assistant in Surgery, Massachusetts General Hospital Instructor in Surgery, Harvard Medical School, Boston, Mass.

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number of inappropriate operations, on partial cardiopulmonary bypass, in patients without pulmonary emboli. It must be emphasized that hard evidence, in the guise of angiography or scan, as pointed out by Doctor Sasahara, must be present before the patient with cardiopulmonary collapse is rushed heroically to the operating room.

All patients with "massive" pulmonary thromboembolism and circulatory collapse do not require embolectomy. Doctor Sasahara has clearly proven that many patients with 50% occlusion of the pulmonary arteries can survive the insult; indeed, some do not have significant hypotension.[3] The spectrum of clinical response is great.

Because of this, our practice in treating patients in whom the diagnosis of massive pulmonary embolism is entertained has evolved to the following sequence. Once the clinical diagnosis of massive pulmonary embolism is made (ECG, vital signs, CVP, urine output) and there is circulatory embarrassment, an Isoprenalin infusion is started as 15,000 units of Heparin are given intravenously. If this is ineffective or causes excessive tachycardia, Epinephrine is administered. Arrangements are made for lung scan or pulmonary angiography immediately. If the patient responds poorly or requires high levels of catechol support, he is immediately taken to the radiology suits for diagnostic evaluation. If he stabilizes, a less urgent radiological diagnostic evaluation is performed, but it is still done within one or two hours. If the diagnosis of massive pulmonary embolus is confirmed and the patient is still manifesting evidence of decreased cardiac output (pressor dependent, oliguric, requires tracheal intubation and ventilation), embolectomy is performed immediately. If the patient's cardiovascular status stabilizes, he is monitored closely in the Intensive Care Unit, and if steady progress is not made over the next 4-6 hours, in terms of weaning from pressors, increasing urine output, general well being, embolectomy is then performed.

In the last three years, the cardiac surgical service has been consulted only 23 times for the diagnosis of massive pulmonary embolism. Two of these patients did not have pulmonary emboli. One had acute deterioration secondary to chronic obstructive pulmonary disease, the other had a large pericardial effusion demonstrated when angiogramed after sudden collapse. He later expired from sudden aortic rupture through a plaque in the ascending aorta. We saw 21 patients with ultimately proven pulmonary emboli in shock. Nine of these recovered with medical therapy; twelve patients underwent pulmonary embolectomy during this period. Two died. The first was an 85-year old man who collapsed 10 days following a prostatectomy. He expired 14 days after embolectomy from renal failure secondary to the hypotension and anuria prior to embolectomy. The second death was in a five-year old boy who had massive intra-operative embolization of a hypernephroma and, following two hours of unsuccessful resuscitation, was referred to the cardiac surgical service for embolectomy, and was unable to support his circulation after cardiopulmonary bypass. In this same period, one operation was performed upon a patient with every classical sign and symptom of pulmonary embolism, but who had clean pulmonary arteries when they were opened at operation.

The operation is started under local anesthesia by inserting cannulae into the inferior vena cave (via the common femoral vein) and the common femoral artery and instituting partial, femoral-femoral, cardiopulmonary bypass. This maneuver, which can be done prior to angiography or scan to support the patient during those procedures, gives immediate improvement in the cardiovascular status, evidenced by lowering the right atrial and pulmonary artery pressures and increasing systemic arterial pressure. General anesthesia is then induced, and the heart is approached via a sternal-splitting incision. A second cannula is introduced into the superior vena cave via the right atrium, and total cardiopulmonary bypass is instituted. The pulmonary artery is then opened longitudinally. Frequently, in patients in whom a large saddle embolus has occluded the bifurcation of the main pulmonary artery, the clot springs out of the pulmonary artery, as it is pushed out by the elevated pressures generated only by the coronary venous return. After all visible thrombus is removed, biliary stone-searching forceps are passed down all the major pulmonary artery branches; suction and Fogarty embolectomy catheters are used to obtain any residual clot as the lungs are manually squeezed. Figure 1 shows a typical harvest of a pulmonary embolectomy. The long, thin character of these thromboemboli indicates that they came from the deep veins of the legs.

All hospitals do not have the material capacity to perform such an heroic and dramatic type of open cardiac operation or even the non-pump, Trendelenberg procedure. For this reason, added to the fact that pulmonary embolism is still the major cause of postoperative death,[13] efforts are being made to develop new methods of treating the moribund patient with massive pulmonary embolism. One ingenious technique is that devised by Greenfield[14] in which a catheter with a large suction cup at the end is introduced into the common femoral vein and advanced to the pulmonary artery under fluoro-

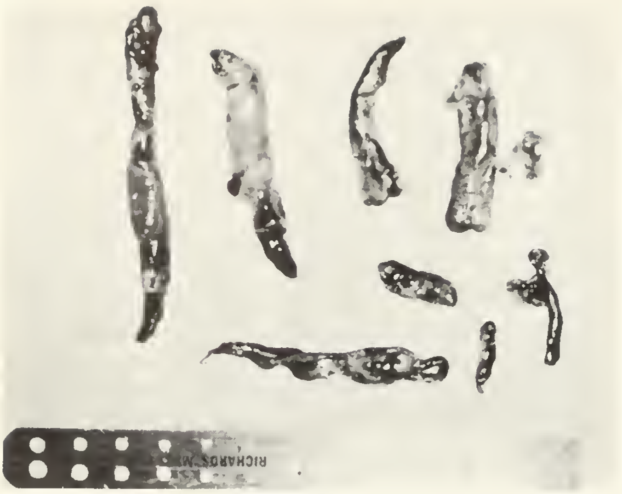

Figure 1
Thromboemboli removed (utilizing cardiopulmonary bypass) from the pulmonary artery of a 67 year old lady who collapsed thirteen days following a cholecystectomy. The long, thin nature of the clots implies their origin — the deep veins of the legs.

scopic control. Contrast material is injected through a catheter to ensure that it has been directed into an appropriate pulmonary artery, and suction is then applied to the catheter. The embolus is then retracted into the cup end of the retractor and the clot is withdrawn along with the catheter. This can be repeated until all available clot is removed. Early reports indicate that this method may be clinically applicable.

There are two reasons for attempting to remove pulmonary thromboemboli. The first we have discussed above: the relief of lethal right ventricular outlet obstruction. The second reason promulgated for embolectomy has been the prevention of chronic pulmonary arterial obstruction and the development of cor pulmonale.[15] Many investigators have shown that most thromboemboli resolve secondary to the inherent thrombolytic capacities of the patients.[16] There have been few reports of chronic pulmonary endarterectomies.[17] They are marginally successful and infrequently needed.

The surgeon is also involved in a second aspect of pulmonary thromboembolism — that of surgically preventing migration of thrombi from the deep veins to the heart. Surgical interruption of the inferior vena cava or common femoral veins is indicated most frequently in patients with a contraindication to anticoagulation. Anticoagulation is the primary method of treatment in patients with pulmonary embolism and deep vein thrombosis. Many deaths are caused by repeated embolization, most of which can be prevented by anticoagulation. Contraindications to anticoagulation include active, on-going bleeding, recent massive trauma with retro-peritoneal or bony injury, active peptic ulcer disease, hemorrhagic diathesis, extensive burns, recent intracranial or spinal cord operation, and patients requiring further stages of a multi-operation procedure. Patients with systemic arterial hypertension have a higher incidence of complications from anticoagulation than normotensive patients, so Heparin and Warfarin compounds must be used judiciously in this situation.

Venous interruption is also indicated for failures of anticoagulation therapy, septic pulmonary emboli, demonstrated multiple small emboli, and immediately following pulmonary embolectomy. The last reason is the danger of keeping a postoperative cardiac surgical patient heparinized because of the inherent coagulation abnormalities associated with cardiopulmonary bypass and the resultant blood loss from the thorax. We reverse the Heparin, attain tight hemostasis, and then interrupt the inferior vena cava immediately after the sternotomy is closed.

Surgical intervention on the inferior vena cava is a high-risk procedure. The mortality rate for inferior vena cava interruption varies from 5%-40%.[18, 19] These patients are usually quite ill preoperatively (they are frequently quite ill pre-embolism) and there are two morbid factors associated with caval interruption. First, the incision used, either trans-abdominal or retro-peritoneal, is a morbidity producing incision. Secondly, the hemodynamic alterations caused by obstruction of the return from the inferior vena cava have been hard to quantitate, leading to serious difficulties in managing these patients postoperatively. Clinical use of the Swan-Ganz flow directed pulmonary artery catheter[20] to give accurate monitoring of left-sided cardiac filling pressures has aided greatly in reducing the post-caval-interruption mortality rate at the Massachusetts General Hospital. In the presence of right ventricular failure, the CVP is a poor reflection of left atrial pressure.[21] Using the Swan-Ganz catheter routinely has shown that much of the cardiac embarrassment following caval interruption is secondary to relative hypovolemia secondary to reduced venous return to the heart. This can be prevented somewhat by tight wrapping of the legs, but it must be treated aggressively by colloid administration.

The hope of trying to prevent the abrupt diminution in venous return has led to attempts at partially occluding the inferior vena cava so that a large embolus cannot pass the obstruction, but blood flow is not severely hindered.

Surgical methods such as the DeWeese[22] and Spencer[23] plications are effective but require extensive dissection of the inferior vena cava. An easier way of decreasing the caliber of the cava is to place a device, made of either metal or plastic around it,[24] still below the renal veins, to narrow it significantly or to create several small channels from one large conduit. A clip can generally be placed around the inferior vena cava in 25-30 minutes operating time. Parallel staples can also be used to decrease the size of the caval conduit, preventing major embolism from the pelvis and legs.[25]

The above maneuvers require general anesthesia. In the moribund patient (not in shock) with marginal cardiac output and less than 50% pulmonary artery obstruction in whom the thrombosis is proven to be restricted to the calves and thighs, common femoral venous ligation can be performed under local anesthesia. The re-embolism rate after this procedure, however, is as high as 10%, whereas as few as 1% of patients embolize following caval interruption.[26] Peripheal venous morbidity is felt to be less after partial interruption (clip) than ligation of the vena cava.

A transvenous (jugular) device has been devised by Mobin-Udin[27] which is a silastic diaphragm with 3 mm. fenestrations mounted on a series of struts, which can be introduced into the inferior vena cava under fluoroscopic control via the neck. This procedure is felt to be associated with less mortality and morbidity in the pre-morbid patient, but instances of "umbrella" migration and re-embolization have been reported.[28]

Conclusion

The surgical approach to pulmonary embolism is concerned with removing life-threatening pulmonary thromboemboli and preventing re-embolization in patients in whom anticoagulation therapy is ineffective or inappropriate. The means of performing such procedures and their effectiveness have been presented.

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An Extralobar Bronchopulmonary Sequestration Associated with Double Ureter and Cervical Vertebral Malformation

Cesar S. Guanzon, M.D. and John E. Standard, M.D., F.A.C.S.

Abstract — **A case of an extralobar bronchopulmonary sequestration associated with a ureter reduplication and a cervical blocked anomaly is presented. Pulmonary sequestration, both intra and extralobar types, is discussed as to the nature of origin, pathology, clinical manifestations and treatment.**

Pulmonary sequestration is a term usually applied to the cystic congenital malformation in which an embryonic bronchopulmonary segment is totally (extralobar) or partially (intralobar) separated from the normal lung and is supplied by an anomalous systemic artery usually coming from the aorta. The clinical importance lies in the presence of an anomalous systemic artery which when not recognized may lead to a serious, if not fatal, operative mishap.

Extralobar pulmonary sequestration is a very rare malformation, occurring with less frequency than the intralobar type. This case report is an example of such an anomaly but associated with a left ureter reduplication and cervical blocked anomaly which seems to be the only report in the English literature.

A Case Report

A 37 year old white female was referred to a surgeon because of a right paravertebral mass lying at the level of the tenth and eleventh dorsal vertebrae by X-ray. It was thought to be a neurogenic tumor. X-ray studies of the vertebra and chest taken because of backache and left chest pain twenty months prior to admission was read as normal except for a congenital cervical vertebra malformation. (Figure 1) Some ten months later, she developed malaise, frequent headache, and left chest pain and was told that this was on the basis of pleuritis and anemia. She did very well on antibiotics and vitamins until two weeks prior to admission when she again complained of similar symptoms, but this time accompanied by a slight productive cough. Antibiotics were again prescribed and improvement was obtained except for the persistence of mild left chest pain. The chest X-ray examination revealed the right paravertebral mass shadow and she was referred to a surgeon.

Examination revealed a slender, tired looking, white female, and a pulse rate of 96 per minute. Heart and lung examinations were negative and there was no clubbing of the fingers.

Her hospital work-up was normal except for her IVP which revealed double ureter on the left side (Figure 2). Chest X-ray tomographic examination revealed a 4-5 cm. soft tissue mass density lying adjacent to the vertebral column on the right side at the level of the 10th and 11th dorsal vertebrae (Figure 3), similar to the faint shadow findings of the chest X-ray taken twenty months before the present examination, which was overlooked at that time. The size and configuration of the shadow had not changed.

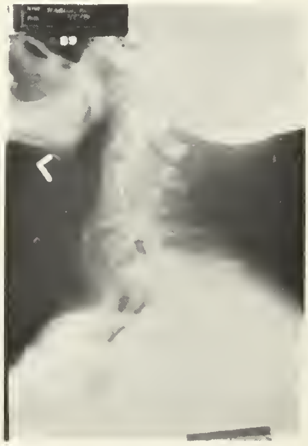

Figure 1

Vertebrae Roentgenogram showing cervical blocked anomaly.

She underwent an elective right extra pleural posterolateral thoracotomy through bed of the resected tenth rib. The paravertebral area was explored and no mass was found. Intrapleurally a 5 x 14 cm. cyst was found lying along the right paravertebral area, supplied by a 3 - 4 mm. size

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DR. CESAR S. GUANZON, active staff member of The Memorial Hospital in Danville, Virginia as a practicing general surgeon.

DR. JOHN E. STANDARD, attending surgeon, Waterbury Hospital, Waterbury, Conn.; attending surgeon, St. Mary's Hospital, Waterbury, Conn.

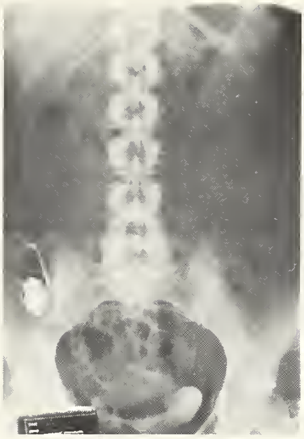

Figure 2
Intravenous pyelogram revealing left ureter reduplication.

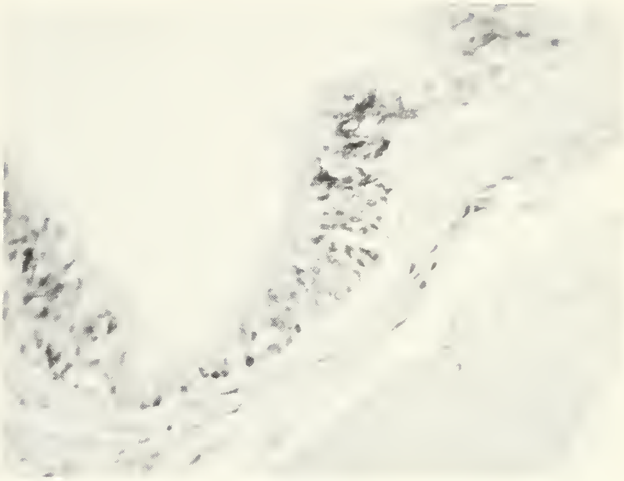

Figure 4
Thin walled cyst resembling bronchus, lined with pseudo-stratified ciliated columnar epithelium. The glands, smooth muscle and islets of hyaline cartilage are noted.

arterial blood supply originating from the inferior pulmonary ligament, coming from the thoracic aorta just above the diaphragm. Two veins of smaller caliber at the lower end of the cyst were seen going to the azygous vein. No adhesions or evidence of inflammation were noted. The cyst was completely separate from the remaining lung tissue and did not communicate with the bronchial tree. The cyst was easily excised after ligation of the anomalous blood supply. Her recovery was uneventful.

The pathologist described the specimen (Figure 4) as a thin walled cyst 9 cms. x 2 cms. in size, with an outer serosal surface marked by injected blood vessels. Transection revealed two communicating locules, 2.5 cm. and 3.5 cm. respectively, containing mucus and creamy yellow fluid. The lining surfaces were smooth. The cyst wall thickness was 0.1 cm. and 0.2 cm. Attached at one pole was a hemorrhagic lymph node, 1.5 x 0.5 cms.

Microscopically the cyst wall resembled bronches. It was lined with pseudo-stratified ciliated columnar epithelium in which the cells were plumper than those of the normal bronchial lining. Beneath the lining epithelium are clumps of glands and smooth muscle similar to bronchial wall. Small islets of hyaline cartilage were also noted.

Discussion

The term pulmonary sequestration was coined by Pryce in 1945, but Harris and Lewis in 1940 reported their unfortunate operative experience of fatal hemorrhage from such aberrant artery. Since then, pulmonary sequestration has received much attention in the medical literature, emphasizing the importance of the artery, its diagnosis pre-operatively by angiogram, and its recognition during surgery.

Intra- and extralobar pulmonary sequestrations are believed to have the same mechanism of formation.[17] The difference is that extralobar sequestration occurs earlier in the development of the lung

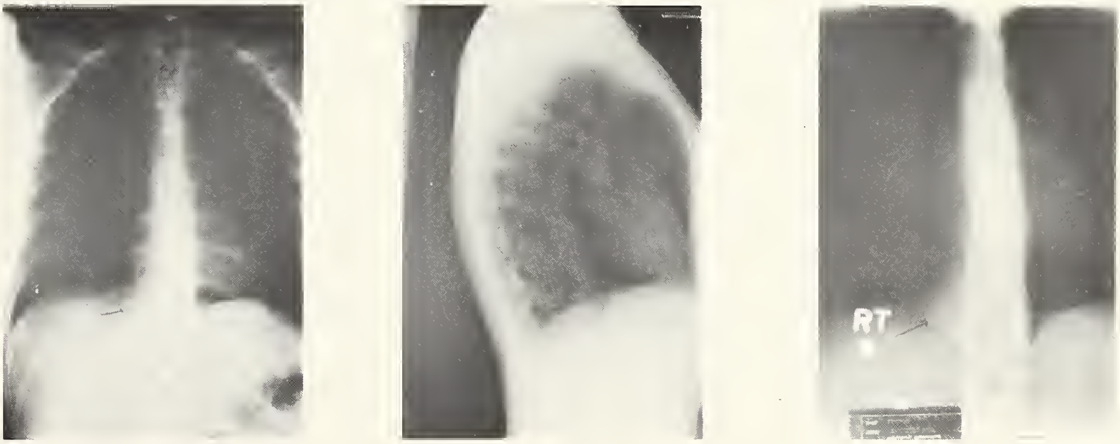

Figure 3
Right paravertebral thoracic mass by X-ray examination and tomography

anlage and therefore the sequestered lung is completely separate from the main lung with pleural investment when fully developed. Extralobar type is a more rare anomaly and it has a known frequent association with congenital anomalies[2,3,5,6,10,21,24,25,27] (diaphragmatic hernia, gastro-intestinal anomalies.) Many theories have been offered concerning the origin of the sequestration,[1,4,6,7,8,9,11,12,14,21,122,23] congenital vs. acquired hypothesis, but the exact mechanism is still unknown.

Pulmonary sequestration may be an incidental finding by routine chest X-ray examination especially extralobar type as in this case, but the intralobar type has the tendency to retain or reestablish communication (Pryce 1946) with the bronchial system and may become infected presenting a clinical picture of repeated lung infection, or confused with lung abscess, bronchiectasis, empyema or tumor.

The lesions of pulmonary sequestration usually are cystic in nature, consisting of non-functioning lung tissues or bronchial tissues. This may be a large cyst or multiple small cyst within a fibrous tissue mass or solid lung tissue with abscesses. The cyst wall is usually lined by respiratory epithelium which is a ciliated pseudostratified columnar epithelium. Smooth muscle is constantly present in the cyst wall, but cartilage, elastic tissue, bronchial glands and alveolar parenchyma are variable in their appearance, which may be mistaken for a bronchogenic cyst.

The aberrant artery[5,21,26] in both types of pulmonary sequestration has an elastic type of arterial wall rather than a muscular type and resembles the pulmonary artery rather than the bronchial artery. The size varies from two millimeters to ten millimeters, averaging five millimeters. If the artery is less than three millimeters in diameter, chances are it is multiple. The aberrant artery usually originates from the lower thoracic aorta, or from the abdominal aorta and this penetrates the diaphragm to reach the lung — or it may come from any of the aortic branches such as intercostals, celiac, internal mammary, innominate artery and subclavian arteries.

Radiographic findings may reveal a rounded homogenous lesion density in either posterior-medial basal area of the lung and may be confused with other diseases, as in this case for a neurogenic tumor. The appearance of homogenous finger-like projection from the mass directed posteriorly and medially toward the aorta may represent artery supplying the sequestered pulmonary tissue,[28] especially true with intralobar type. Erect PA chest X-ray and Planography may help demonstrate the anomalous vessel shadow,[18] while air and fluid level in the cystic mass density may be seen if it communicates with a bronchial tree. Bronchoscopy and bronchography usually fail to show such communication. Aortography [13,16,26] is helpful in demonstrating the aberrant artery coming from the aorta.

Treatment for this anomaly is surgical for relief of symptoms or to differentiate[20] it from tumors. Excision[2,15,19] of the lesion may be adequate especially for the extralobar type because it is a completely separate mass from the lung. Lobectomy [2,4,21] for intralobar type of lesion is the treatment of choice and only in very rare far advanced diseased lung is pneumonectomy[9,21] advocated. The most important word of caution is beware of the anomalous vessel, especially when there are inflammatory adhesions and especially in the area of the inferior pulmonary ligament, where the aberrant artery is usually located and may be cut inadvertently with the bleeding artery retracting into an inaccessible location.

The case presented is one of an extralobar type of pulmonary sequestration. This lesion was located on the right side, which is uncommon and was associated with left ureter reduplication and a cervical blocked anomaly, indicating the frequency of multiple anomalies.

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Massive Spontaneous Adrenal Hemorrhage

A Case Report

Santokh S. Lyall, M.D., Oscar Roth, M.D.,
John H. Flynn, M.D. and William R. Maniatis, M.D.

ABSTRACT — A case of massive retroperitoneal hemorrhage due to spontaneous rupture of the left adrenal gland is reported. The patient complained of severe epigastric and left-lower chest pain. He subsequently developed shock and a progressively increasing mass in the left subcostal and flank area. At the operation the left adrenal gland was found to be split open and actively bleeding. The patient was successfully managed by left adrenalectomy alone.

Spontaneous, massive retroperitoneal hemorrhage usually heralds rupture of an abdominal aneurysm in an adult. However, an adrenal hemorrhage as a cause of such bleeding should be considered in the differential diagnosis. Symptoms at the onset may suggest dissecting aortic aneurysm, coronary thrombosis, renal colic, rupture of the spleen or retroperitoneal bleeding due to anticoagulants. Associated findings of hyperpyrexia and shock may point towards gram negative sepsis or Addisonian crisis due to bilateral adrenal hemorrhage. Surgical intervention may be indicated once bleeding is suspected. During exploration a very careful evaluation of the organs in relation to the adrenal gland should be made in order to prevent the needless removal of uninvolved structure. Almost all of the cases reported in the literature underwent nephrectomy and/or splenectomy together with adrenalectomy.[1 2 3 4 5] Cases reported by Probstein et al[6] and Oddo[7] were managed by drainage procedure of the cyst cavity. Our patient, as reported here, was successfully managed by the removal of the actively bleeding left adrenal gland.

Case Report

The patient, a 68-year old physician, while watching television at home noted the sudden onset of severe left epigastric and left-lower chest pain asso-

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DR. SANTOKH S. LYALL, Chief Resident in Medicine.
DR. OSCAR ROTH, Director of the Coronary Care Unit and Department of Electrocardiography.
DR. JOHN H. FLYNN, Attending in Surgery.
DR. WILLIAM R. MANIATIS, Attending in Surgery, all at the Hospital of St. Raphael, New Haven, Conn.

ciated with diaphoresis. Self administration of 100 mg. of demerol intramuscularly gave only slight relief. The patient was brought to the Emergency Room immediately by ambulance. There was no history of trauma.

Past history was significant in that he had had hypertension and angina pectoris for several years. The patient was taking erythrityl tetranitrate, methyclothiazide and deserpidine. He never had taken any anticoagulants. Twelve years ago a cholecystectomy was done for gallstones.

Physical examination revealed a slightly obese man in moderate distress. He appeared diaphoretic and complained of severe pain in the left-upper abdomen. The pulse was 60 per minute and regular. Blood pressure was 160/100 mmHg. Temperature was 98.6F. Respiration rate was 24 per minute. There was tenderness and slight sense of fullness in the left-upper quadrant of the abdomen and flank. No rebound tenderness could be elicited. No masses were palpated. Bowel sounds were present but were somewhat diminished. Rectal examination was unremarkable. Peripheral arterial pulses were felt normal in both lower extremities. The remainder of the physical examination was unremarkable.

Admission laboratory studies revealed the hematocrit of 42, BUN 23, sodium 131, potassium 4.0, carbon dioxide 22 and chloride 100 milliequivalent per liter of blood. Routine urine analysis was negative except for 2+ albumin. EKG revealed inverted T wave in AVL. The chest x-ray was unremarkable. Three-way abdominal x-rays showed obliteration of the left psoas shadow. No calcification was noted in the abdominal aorta.

On admission the possibility of a dissecting abdominal aortic aneurysm was considered and surgical consultation was requested. Four hours after admission the patient's blood pressure dropped to 70 mmHg systolic with a concomitant fall in hematocrit to 38. There was no significant rise in the blood pressure and urinary output after plasma expanders and vasopressors were administered. A repeat EKG did not show any change. No occult blood was found in the stool. Multiple diagnostic possibilities, including dissecting abdominal aortic aneurysm, rupture of the spleen, left renal colic and gram negative sepsis were considered. Therapy with blood transfusions, cephalothin, kanamycin and hydrocortisone was instituted. Eleven hours after admission an increase in the fullness in the left-upper quadrant and flank was noted. The hematocrit further dropped to 36 in spite of the blood transfusion. The patient was taken to the operating room for an exploratory laparotomy at this time.

The abdomen was entered through an extended left subcostal incision. A large retroperitoneal hemorrhagic mass was noted. The mass elevated the splenic flexure and upper descending colon. The abdominal aorta was palpated and felt to be normal. The right kidney was in its usual position and unremarkable. The outline of the left kidney was obliterated by the hemorrhagic mass. The spleen was carefully felt and found to be normal. At this point the lateral attachments of the splenic flexure and upper descending colon were divided and the retroperitoneal space entered rotating the colon medially. About 1,000 cc. of clotted blood was gently removed, permitting complete exposure of the left kidney which was noted to be normal. A constant, steady flow of blood was seen coming from the region of the left adrenal gland. This area was exposed and the gland noted to be split (figure 1). The suprarenal vessels were dissected out, ligated and divided. The bleeding immediately stopped. The left adrenal gland was then removed. After thorough irrigation with saline, drains were brought out at the lateral extension of the incision and the wound was closed. The patient's post-operative course was uneventful. Steroids were tapered off and he was discharged ten days post-operatively with normal electrolytes.

Pathological study of the gland showed the anterior surface to be ruptured (figure 1). Microscopically the adrenal gland was heavily infiltrated with red blood cells but was histologically normal otherwise. The vessels appeared to be normal.

The patient has remained well over the past 3 years. He continues to take his previous medicines.

Discussion

Spontaneous adrenal hemorrhage although rare is a well recognized entity. The exact incidence of this condition is difficult to find since many cases of mild adrenal hemorrhage may pass unnoticed or give rise to symptoms of chronic adrenal insufficiency. More and more cases secondary to anticoagulant therapy are recognized but not all are reported. In the literature a varying incidence is presented by different authors. Botteri and Orell[8] found fifteen cases of massive adrenal hemorrhage or infarction out of 10,852 autopsies on adults, a frequency figure of 0.14%. Incidence of 0.6% was found by Mitchell and Augrist[9] who did routine histological examinations in all autopsies. Plant[10] has shown a much higher incidence, of 9%. Other conditions which may be associated with severe adrenal hemorrhage includes severe sepsis,[11] pregnancy,[12] burns, trauma[13] anticoagulants,[14] hypertension,[15] [16] [17] bleeding tendancy, electroconvulsive therapy[18] and ulcerative colitis.[19]

The exact pathogenesis of adrenal hemorrhage is not known. However, various hypotheses have been forwarded. In severe, acute infection tubular degeneration of the adrenal cortex is described by Rich.[11] This degeneration converts normally solid cords of cells into hollow structures resembling renal tubules. Wiebur and Rich[20] demonstrated in rats that the adrenal could be stimulated by ACTH in such a situation to cause necrosis of the cortical cells. The cases reported by Botteri and Orell[8] had adrenal hemorrhage while on anticoagulant therapy. These cases had infarction of the adrenals with thrombi in the medullary veins as was noted by Keele.[21] Adrenal hemorrhage in patients with hypertension has been reported by Edelman,[15] Greene[16] and McMillan.[17] The role that hypertension may play is not clear. Only about 25% of the reported cases had any significant degree of cardiovascular disease.[8] Greene[16] speculated adrenal arteriolar damage in malignant nephrosclerosis was responsible for hemorrhage. He felt that in a hypertensive patient who presents himself with hypotension without any evidence of coronary occlusion, adrenal apoplexy should be suspected. The case reported here never had an accelerated phase of hypertension.

Massive retroperitoneal adrenal hemorrhage may be diagnosed pre-operatively. This patient and others reported,[1] all presented with abdominal pain and later associated signs of hemorrhage. If the patient's condition permits, more extensive evaluation can be undertaken. A flat plate of the abdomen may disclose absence of a psoas shadow as it was the case in this patient. An I.V.P. may disclose depression of the kidney on the involved side. An aortogram as reported by Lawson[1] revealed a normal aorta and major branches in one patient and delineated the hematoma in another. Rapid bleeding should cause extravasation of the dye in the adrenal area. These procedures were not performed in this patient since the hemorrhage was evident and the delay for the exploration would have been detrimental.

Difficulty at laparotomy has been clearly recognized.[2] Enblock dissection at the time of surgery has been done in the previously reported cases because of suspected tumor and difficulty in evaluating the source of hemorrhage. Tumors have been associated more commonly with bleeding than massive adrenal hemorrhage. Pheochromocytoma, hypernephroma, retroperitoneal sarcomas, adrenal carcinoma and myelolipomas[22, 23] all have been associated with massive bleeding.

To our knowledge our patient is the only case reported that has had only the ruptured bleeding adrenal gland removed without excision of normal associated organs.

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Bacterial Meningitis: Current Status of Vaccines Against the Meningococcus and Hemophilus Influenzae Type B

Ronald Gold, M.D.

Approximately 8,000 Americans develop bacterial meningitis each year of whom 10-20% die and an equal or larger number sustain permanent neurologic damage. Fifty percent of these cases occur in children less than 2 and another 25% in children 2-10 years of age. Reduction in these mortality and morbidity rates through advances in the treatment of meningitis are not very likely. The only solution to the toll of death and disability due to bacterial meningitis is prevention.

Vaccines have been developed against groups A and C meningocci and *Hemophilus influenzae* Type B, organisms which currently account for about 3/4 of all cases of bacterial meningitis. The vaccines consist of the capsular polysaccharides extracted and highly purified from each organism. Production of the vaccines is relatively simple and inexpensive.

The meningococcal vaccines were developed at the Walter Reed Army Institute of Research.[1-5] Extensive field trials in Army recruits have demonstrated the safety of these vaccines in adults.[6-8] The group C meningococcal vaccine has been shown to reduce the incidence of group C disease by 90% and is now given routinely to all recruits.

The *H. influenzae* Type B vaccine was developed independently by Dr. David Smith of Boston[9] and Dr. John Robbins[10] of National Institute of Health. Both groups of researchers have been active in evaluating the vaccine in infants and children.

Testing of the meningococcal vaccines in children was begun by Drs. Lepow and Goldschneider in 1971. Preliminary studies with children of UCONN Health Center faculty, at Newington Children's Hospital and in the private practice of two Farmington pediatricians provided the background data necessary to undertake larger trials.[11,12]

With the cooperation in Danbury of the school system, parents, and children, and supported by a grant from the Center for Disease Control, 1,200 first and second grade children were immunized with either group A or C meningococcal vaccine in October 1972. The children have been followed for one year to determine the effects of the vaccines on the acquisition of the meningococcal carrier state and the duration of the antibody response.

In June 1972, evaluation of the response of 2-3 month old infants to the meningococcal vaccines was begun. This project has been a cooperative effort involving the Departments of Pediatrics and Pathology of the UConn Health Center, the Danbury Health Department, and the pediatricians. Financial support has been supplied through a contract from the National Institute of Allergy and Infectious Diseases. Over 250 infants have entered the trials so far and an additional 175-200 will be added in the coming year.

The infant studies have been designed to determine the most effective dose and schedule of vaccine administration. In addition, the response to a mixture composed of the polysaccharides of Groups A and C meningococci and *H. influenzae* Type B will be compared to that of the antigens given separately.

The results thus far are most encouraging. As in adults, no significant local or systemic reactions have occurred in infants or children. The antibody response has been found to be age dependent. Children over 18 months of age produce 1/2 the quantity of specific antibody compared to adults; infants produce only 1/20th to 1/50th of the adult response. Whether the amount of antibody induced in infants will be sufficient to protect them against disease remains to be determined. Hopefully, vaccines trials in progress in Danbury, elsewhere in the United States, in Brazil, Egypt and South Africa will answer this question, and lead to the control of bacterial meningitis.

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DR. RONALD GOLD, Assistant Professor, Department of Pediatrics, University of Connecticut Health Center School of Medicine, Farmington, Conn.

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American College of Surgeons/National Institutes of Health: Organ Transplant Registry Third Scientific Report

Although kidney transplants are now an effective treatment for certain patients, other human organ transplantation must still be considered as experimental, according to the most recent report from the American College of Surgeons/National Insitutes of Health Transplant Registry.

The report is based on follow-up information on 12,389 kidney transplants and over 500 grafts of other organs. Results indicate that long-term kidney transplant function is the rule in most cases, and long-term survival of the recipient is to be expected. Moreover, survival with graft function has usually meant normal living, including 62 instances in which the recipient has become pregnant.

The Third Scientific Report of the Organ Transplant Registry, notes that all other types of transplantation — heart, liver, lung and pancreas — have less encouraging results and must be viewed as still experimental.

Although mild encouragement is derived from the fact that an occasional patient is indeed benefited by a heart, liver or lung transplant, the report states, accurate prediction of which patient will have a good result has not been achieved.

Through 1972, a total of 202 cardiac transplants were performed, 132 of them in the United States; but as of January 1, 1973, there were only 26 survivors — 22 of them in the United States. During 1972, there were 17 transplantations performed in this country, 13 of them at Stanford University. There were 7 survivors, all at Stanford. Graft rejection, infections, malignant neoplasms and graft atherosclerosis continue to take a high toll, the report states, but 29 patients have survived two or more years, six of them for four years or more.

As of January 1, 1973, a total of 182 liver transplants have been performed on 178 patients. Early survival after liver transplantation has been accomplished fairly regularly, but few patients have achieved extended survival.

Lung transplantation has had small success. Of 32 transplants performed during the last ten years, only three patients survived more than 30 days with graft function.

The outlook for pancreas transplantation by a variety of methods has been equally discouraging. Only two of 32 patients have a successfully functioning transplant 14 and 20 months after grafting.

Maintenance of the registries and the analysis of the data they contain are the responsibility of the American College of Surgeons under a contract with the National Institutes of Health.

The organ transplant report noted that the success of the registries is a tribute to the cooperative spirit of workers in the transplantation field, many of whom report from great distances at their own expense, and that the registries might well serve as an incentive to others to create registries for evaluating other methods of medical care.

Requests for reprints of either or both reports should be addressed to John J. Bergan, M.D., FACS, 55 East Erie Street, Chicago, Illinois 60611.

Recent Advances In Clinical Medicine

Epitomes of Anesthesiology

Cardiovascular Effects of Narcotics

The nitrous oxide — narcotic technique of anesthesia experienced resurgence following Lowenstein's[1] [2] report of the use of intravenous doses of morphine (0.5 - 3.0 mg/Kg.). Lowenstein stated that in normal adults, large intravenous doses of morphine have relatively little effect on the cardiovascular system. However, Wong[3] found that the addition of nitrous oxide to the narcotic technique produced decrease in cardiac output and increase in systemic vascular resistance without significant change in mean arterial blood pressure.

Goldberg[4] reported that both fentanyl and morphine had direct negative inotropic properties, but neither produced marked cardiovascular alterations in normal supine human beings, because sympathetic activity increased concommitantly. In isolated rat heart muscle preparations, equianalgesic doses of fentanyl are one-third to one-fourth as depressing to the myocardium when compared to morphine.

Strauer,[5] using the contractile response of cat myocardium, found morphine (1-10 μg/ml) had positive inotropic effect, but concentrations greater than 100 μg/ml had negative inotropic effect. Meperidine in concentrations less than 1 μg/ml showed no positive inotropic effect, but concentrations greater than 1 μg/ml produced depression of myocardial mechanics. Fentanyl caused no significant effect on heart muscle mechanics at low concentrations (0.01-1 μg/ml), but caused negative inotropism at higher concentrations. In equianalgesic doses, fentanyl was 2-4 times, and, meperidine 100-200 times more depressing to myocardial contractility than morphine.

Grell,[6] reported that cardiovascular function remained relatively stable after fentanyl in debilitated and hypovolemic patients when fentanyl was used without barbiturate induction.

There appears to be no clear cut choice between fentanyl and morphine in respect to their effect on cardiovascular system. At worst (or at best), in equianalgesic doses, they seem equally depressing to the heart but meperidine is more depressing than both.

J. G. Barry Mason, M.D.

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Control of Intracranial Pressure During Anesthesia

The anesthesiologist must avoid increases in cerebrospinal fluid (CSF) pressure in patients with recently sustained head trauma or known intracranial disease. Basic management includes early airway control and avoidance of hypoxia, hypercarbia, coughing, straining, and overhydration. Special techniques are often required to lower CSF pressure during intracranial surgery, which includes hyperventilation with or without negative expiratory pressure, induced hypotension, diuretics, and/or steroids to combat cerebral edema. The effects of anesthetic agents, position, and positive airway pressure on CSF pressure must be controlled.

All inhalation agents (except possibly enflurane) elevate cerebral blood flow and increase CSF pressure.[1] [2] Hypocarbia counteracts this effect by producing cerebrovascular constriction. Among the intravenous agents, ketamine elevates cerebral blood flow[3] and narcotic-induced respiratory depression produces hypercarbia and increased CSF pressure. Some neuroleptic agents may lower CSF pressure,[4] and doses of barbiturates which do not cause severe respiratory or cardiac depression do not elevate CSF pressure.[1]

In the sitting or prone position, abdominal compression by improperly placed rolls, an overtight abdominal binder, or extreme hip flexion may impair cerebral venous drainage by elevating central venous pressure. This increases CSF pressure and venous bleeding. Acute neck flexion, by compressing the jugular veins, may do the same.[5] Excessive airway pressure increases intrathoracic pressure, impairing cerebral venous drainage. Modest negative airway pressure augments cerebral venous return, but negative expiratory pressures beyond -4 mmHg may exceed the static recoil pressure of the lung, producing small airway closure with air trapping. This prevents decrease in intrapleural pressure and may cause elevation of $P_aCO_2^-$ both causing elevated CSF pressure.[6] Hypocarbia produces progressive decrease in cerebral blood flow until a plateau is reached at about 20 torr P_aCO_2.

Stable CSF pressure may be anticipated when rapid, smooth induction of anesthesia followed by immediate airway control and hyperventilation are achieved with barbiturate — O2 — relaxant technique. Stable CSF pressure may be maintained with addition of an inhalation agent and hyperventilation to modest hypocarbia. CSF pressure may be lowered by hyperventilation to marked hypocarbia with airway pressures ranging from 15/0 to 25/-4 cm H2O. Cerebral edema, intracranial space-occupying lesions, or improper positioning may elevate CSF pressure despite good basic procedure, requiring the addition of special techniques.

Gaylord H. Rockwell, M.D.

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Environmental Hazards in the Operating Room

During the administration of anesthetic vapors and gases, a considerable portion escape into the operating room and are inhaled, greatly diluted, by all personnel present. Although chronic inhalation of anesthetic agents has been going on for a long time, little thought was given to the potential hazards of such exposure until it was shown that many anesthetic agents are partially metabolized after inhalation.

Recent studies have shown that halogenated anesthetic agents can be recovered from the expired air of patients and anesthetists for as long as 20 days after exposure to the agent, and, that individuals, for example, anesthetists, exposed to such agents daily are probably never fully free of trace amounts of these compounds.[1]

One potential hazard was suggested by Cohen et al[2] who demonstrated that the spontaneous abortion rate in female operating room personnel, nurses and anesthesiologists, was 3 times greater than for non-operating room workers; also, that in live births the proportion of female infants rose markedly. Corbett has also noted higher incidence of birth defects in infants born to mothers working in operating rooms.

The implication of these studies is that chronic inhalation of even very small amounts of anesthetic agents is potentially hazardous and that intense efforts must be made to remove such agents from the operating room atmosphere to prevent their buildup in the tissues of individuals working there.

Michel Wugmeister, M.D.

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"Halothane Hepatitis"

The controversy among anesthesiologists, internists and surgeons regarding the usually "post hoc ergo propter hoc" diagnosis of "halothane hepatitis" continues. Physician response has varied from total acceptance to total rejection. The relationship, if any, to viral hepatitis remains unclear and blind attempts to distinguish between viral hepatitis and 'halothane hepatitis' on morphological basis have been uniformly unsuccessful.

Davis argues convincingly that the entity does not fulfill allergic criteria of (1) a sensitizing dose, followed by (2) a response evoking exposure to halothane. This need not necessarily take place because reactions have been reported on initial halothane exposure. Davis also states that response to an exogenous allergen wherein the liver is the only organ affected is unknown to him.[1]

Simpson, reporting a large British study of postoperative jaundice and liver dysfunction, cites the pitfalls of interpreting isolated cases. Parts of this study found neither evidence of lymphocyte transformation to halothane in patients with postoperative hepatic dysfunction, nor evidence of cell-mediated immunity to halothane in patients who became jaundiced following halothane anesthesia. Evidence for hypersensitivity to halothane metabolites was also lacking.[2]

Since serum and infectious hepatitis are highly contagious and although there are no established tests, Simpson and his co-workers conclude from their study that immunological, metabolic and viral data are such that the burden of proof lies with "the protagonist of 'halothane hepatitis' to establish that when postoperative jaundice occurs, viral disease is not involved," and that presently there is little evidence of a cause-effect relationship between halothane and postoperative jaundice following one or more exposure.

FREDERICK W. HEHRE, M.D.

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Apgar Score Significance

Since the introduction of the scoring system by Virginia Apgar 20 years ago, this method of evaluation of the newborn infant has become almost universally used.[1] Although perfection was never claimed, the Apgar Score has provided impetus for prompt and active resuscitation, better communication between medical centers and initiated intensive interest in the entire perinatal sphere.

Using sophisticated statistical analysis, Selwyn Crawford and his associates in Birmingham Maternity Hospital have reported the significance of the individual components of the 1-minute Apgar Score.[2] Four situations studied included delivery: (1) by Caesarean section; (2) with lumbar peridural block; (3) with no narcotics; and (4) with narcotics administered within 6 hours. Comparisons were made with the umbilical vessel acid base status of the infant. The rank of decreasing proportion of low scores was:

$$\begin{tikzcd} \text{Caesarean Section} \arrow[r] & \text{Narcotics} \arrow[dl] \\ \text{No Narcotics} \arrow[r] & \text{Peridural} \end{tikzcd}$$

There was a high degree of association of each of the scoring components with each other, except for color, whether or not transplacental drugs were administered. Significant differences were observed in the distribution of scores for drug and no-drug combinations, the drug groups showing pronounced differences in respiratory effort. Drug effect also reduced the close relationship of the components with acid base status. Low scores were associated with low pH, high pCO2 and metabolic acidosis, although no single component of the Apgar Score was shown to have the strongest relationship. Interestingly, the Caesarean section group showed the higher proportion of low Apgar Scores but was consistently the least acidotic.

Crawford's study provides statistical confirmation of what has long been accepted clinically: that the 1-minute Apgar Score does in fact, give fair assessment of the acid base status of the infant and that the 5-minute score is a reflection of the enthusiams of resuscitation efforts.

FREDERICK W. HEHRE, M.D.

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PERIODIC HEALTH EXAMINATIONS BY LAY ORGANIZATIONS

The benefits of scientific medicine cannot be adequately delivered to the individual through the medium of a third party. Communication of results of physical examination and the general advice with which it should be associated should go directly from the individual physician to his patients. The relation between the patient and the physician is an individual matter, and anything that disturbs this relationship is detrimental to the best interests of the patient. — *Opinions and Reports, Judicial Council of the AMA.*

Letters to the Editor

Letters to the Editor are welcomed and will be published, if found suitable, as space permits. Like other materials submitted for publication, they must be typewritten *double spaced* (including references), must not exceed 1-1/2 pages in length and will be subject to editing and possible abridgment.

NERVE ENTRAPMENT SYNDROMES

To the Editor: The brief summary report of nerve entrapment syndromes by Gordon and Ritland *(Conn. Med. 38:* 97-109, March, 1974) was well done and should serve to call these all too common disorders to the attention of primary physicians.

The "tarsal tunnel" syndrome was known to electromyographers before the papers of Keck in 1962 and Kopell in 1963. See: Marinacci, A. A., Clinical Manifestations of Plantar Nerve Disorders. Bull. Los Angeles Neurologic Soc. *22,* 171-176, Dec. 1957.

The authors could have included the following additional nerve entrapment syndromes:

1. The lateral femoral cutaneous nerve where it passes under the inguinal ligament which gives rise to the syndrome of meralgia paresthetica.
2. The femoral nerve beneath the inguinal ligament, which will cause pain and paresthesia in the lower anterior and medial aspects of the thigh and sometimes weakness of the quadraceps.

With the exception of meralgia paresthetica, all of the nerve entrapment syndromes will show positive electromyographic signs and this diagnostic procedure can be of considerable help in establishing the diagnosis and the location of the entrapment.

Sincerely,

Greenwich, Conn.
Paul W. Dale, M.D.

The above letter was referred to the authors of the article in question who offer the following reply:

LATERAL FEMORAL CUTANEOUS NERVE

To the Editor: The lateral femoral cutaneous nerve was discussed in the article on page 100.

The femoral nerve certainly does cause symptoms when it is trapped in the inguinal ligament area.

In my experience electromyography has not been 100% positive in signs where there was clinical symptoms of entrapment, therefore, would use it as an adjunct diagnosis, and go more often by the clinical picture. In particular, carpal tunnel, seems to more often present the classical clinical picture, and have a normal EMG.

Sincerely,

Hartford, Conn.
G. David Ritland, M.D.

THE "NEW" JOURNAL

To the Editor: I would like to take this opportunity to congratulate you on the splendid job you are doing as the Editor of *Connecticut Medicine.* My colleagues and I are grateful for the way you helped edit and publish our paper on aortic thrombosis which appeared in the Journal.

It is now over a year since you took over the Editorship after the death of Dr. Louis Nahum. Despite the challenge in succeeding such a wonderful Editor as Dr. Nahum, I believe you have succeeded in imprinting your own mark. As far as the Journal itself is concerned, I like the new cover sheet and believe that the articles not only provide great interest but also give Connecticut physicians the opportunity to publish their own observations and experiences.

As before, it is a continued pleasure to read *Connecticut Medicine.*

Sincerely,

Oscar Roth, M.D.
Director, Coronary Care Unit and
Department of Electrocardiography,
Hospital of St. Raphael
New Haven, Conn.

LUX, VERITAS ET SHOCKLEY

To the Editor: Congratulations on your editorial, "Lux, Veritas et Shockley," What you said needed to be said . . . and you said it so very well! My highest praise would be that I wished I had written it! And I wished I had.

Best wishes and good luck!

Respectfully,

Madison, Conn.
Richard B. Elgosin, M.D.

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits.

Science Year. The World Book Science Annual. A Review of Science and Technology During The 1973 School Year. 433 pp. Chicago, London, Paris, Rome, Stuttgart, Sydney, Tokyo, Toronto: Field Enterprises Educational Corporation, 1974. No price given.

Frontiers Of Science 1, by S. T. Butler and Robert Raymond. 64 pp. New York: Doubleday. 1974. $1.95.

Frontiers Of Science 2, Introduction to Modern Medicine by S. T. Butler and Robert Raymond. 64 pp. New York: Doubleday. 1973. $1.95.

The Greatest Adventure. Basic Research That Shapes Our Lives by Eugene H. Kone and Helene J. Jordan. 304 pp. 78 illustrations. New York: The Rockefeller University Press. 1974. $9.80.

Current Pediatric Diagnosis and Treatment by C. Henry Kempe, M.D., Henry K. Silver, M.D. and Donough O'Brien, M.D. and Associate Authors. Lange Medical Publications, Los Altos, California 3rd Edition. 1020 pp. 1974. $12.00

The President's Page

To be aware of the process of government is to be aware of the dangers of governmental controls. There are several kinds of controls, and the social revolution is headed toward accountability and controls that will be imposed on the practice of medicine.

The first type of control is self-imposed control. This, in my view, is the best kind — if controls there must be. An example of this kind is voluntary PRO, and this is what we are trying to effect in Connecticut at this time. If such a system is working properly by the time government moves in — and it is beginning to move in already — there is less chance of government changing the system.

The second type of control is governmental control. This can be divided into indirect and direct controls.

Examples of indirect governmental controls are funding programs, loan programs, and incentive programs.

Examples of direct governmental controls are legislative controls and regulatory controls.

We are moving into the era of direct governmental controls even now, and it is most important to understand the differences between legislative and regulatory controls.

Legislative controls are brought about, as we all know, by the legislative process — the passing of laws. The attack on this is measured in the familiar way of communicating with our candidates and legislators. This is the charge of COMPAC and our Legislative Committees.

The regulatory process is more insidious. Regulations and informal directives move away from the legislative process toward the bureaucratic process. We must deal more and more with agencies that have bargaining power, for our own bargaining power at the present time seems to be far from adequate.

The laws demand certain regulations which spell out the administrative framework, codify administrative policy and elicit public reaction.

Regulations can start from any part of a federal agency. They then have to clear the agency as a whole, and the Secretary has the final say.

They are issued initially as a proposed rule and may be changed after a sixty day comment period.

There are several elements to be considered in the writing of any regulations: 1.) the statute itself, 2.) the reports of the hearing committees, 3.) the record of the hearings (legislative history) and the Congressional intent, 4.) administrative interpretations and 5.) the ideas of the speakers for the bill (architects of the bill).

The public does not know what the regulation will be until the Secretary has it published. Then there is a sixty day waiting period, which can be lengthened or shortened. Because of this short comment period, it is more difficult to help mold the regulation than it is to help mold the law. Also then one is dealing with the agency-bureaucracy rather than legislators with whom one is familiar.

The AMA, however, is quite active at this level. And this is one reason why the AMA needs your financial support if nothing else. It maintains a Washington office and has people on the spot to stay on top of these things.

For instance, the regulations concerning pre-hospital certification, which came out in January and is a regulation of the Medicare-Medicaid laws quickly drew the fire of the AMA to the point that the moment that Mr. Weinberger, Secretary of HEW, will have put this regulation into effect, the AMA will have taken him to court. Subsequently, Mr. Weinberger withdrew these regulations.

James H. Root, Jr., M.D.
President

Reflections from the Dean's Office

Robert U. Massey, M.D.

Predicting the future is a form of playfulness which few of us can resist, although as we grow older, the fact that we are losing most of the games at long last becomes evident.

Deans of American medical schools are presently playing a game of prophecy. They are using the "Delphic" method in which each dean gives his answers on a computer print-out to questions about the future. Through a series of iterations in which he compares his responses to the mean responses of his hundred or so colleagues, he indicates his opinion about whether such and such an event is likely to occur, when it is likely to occur, and whether it would be desirable. He has several opportunities to change his answers (except with regard to desirability) in the light of other's responses. The input part of this process has now been completed, the computers are metabolizing the data, and shortly we shall know the collective predictions of deans about the future of medical education, medical practice, and biomedical research.

The polling of opinions about future events may prove only that collective wisdom is little better than individual prejudice. We shall see.

The physicist, Dennis Gabor, in a book written ten years ago said, "The future cannot be predicted, but futures can be invented."[1] It may be possible for a computer technologist to predict the next generation of computers; for a neuro-physiologist to predict the next addition to our knowledge of the biochemical basis of memory; for a politician to predict the next election; or for a demographer to tell us how many freshmen we shall admit in 1976. The next four or five years are already determined and quite knowable if we could get all the facts together. Yesterday's events have already cast the shape of tomorrow.

But we do not have all the facts, and we know too little to understand them if we had them. The computer and the systems analysts allow us to deal with many variables in a way that would have been impossible 25 years ago. With better data and more analytic skill, the course of the next half decade might be clear enough to be useful for rational planning.

Beyond five years the probability space expands toward an apparent infinity of possibilities; the grip of Calvinism weakens, and the powers of foreordination pass from events to man.

It is this more distant future which, in Gabor's words, "can be invented." It is because it can be invented that optimism is possible.

All the predictors now seem to suggest that we in the Western and westernized world have embarked on a journey which few desired and which is leading to disaster. The saving exceptions are that we can turn around and set a different course.

In fact, society, rather than resolutely heading for the rocks, has frequently taken this option. History, read one way, is the story of renewals. Societies seem over and over to be able to recapture the optimism of springtime and to recreate periods of harmony, when for a time art, science, law, philosophy, and custom all fit together in a kind a *Gesamtkultur.*

Such a future must be designed, not by powerful planners who will seek to impose their will through regulation and restrictive fiscal policy, but rather by common consent expressed in the attention paid to the education of the young who must manage the future.

If the deans are concerned about the future because they need charts of the next five years for navigational purposes, that is a good reason to attempt the Delphic method. More important, however, are the visions of an undetermined time beyond that time, the time for which educational pains must be taken.

That time can be invented. Desired changes in medicine which will fit harmoniously into a better world order are possible, but ought to begin now with medical students and house officers. The university, almost more than any other of our institutions, has a responsibility for the future.

ROBERT U. MASSEY, M.D., Dean and Professor of Medicine, University of Connecticut, School of Medicine, Farmington, Connecticut.

[1] Gabor, Dennis. Inventing the Future. New York, Alfred A. Knopf, 1964.

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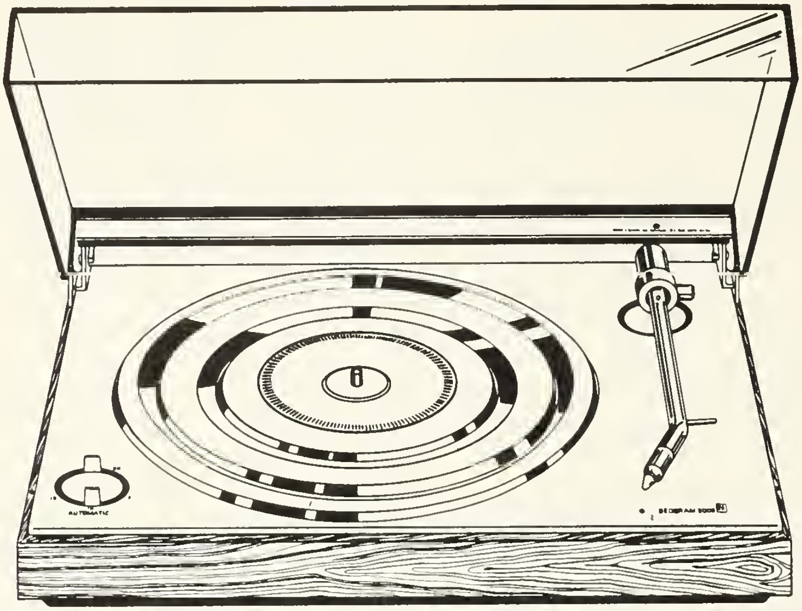

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The Long-Ribicoff Bill

Senator Abraham Ribicoff

On October 2, 1973, the Chairman of the Senate Finance Committee, Russell Long, and I, introduced S. 2513, the Catastrophic Health Insurance and Medical Assistance Reform Act of 1973.

There have been many bills already introduced in Congress — ranging from the all inclusive Kennedy plan to plans of the Nixon Administration and the health insurance industry which rely exclusively on private health insurance. Virtually every organized interest group has its own proposal, each of which assures that its own interests are fully protected.

But until the Long-Ribicoff bill was introduced there was no legislation which attempted to meet the most pressing health care needs in a balanced and fiscally responsible manner. Its main theme is partnership — cooperation between the Federal government and the private sector in making high quality health care available for all.

An indispensable element of any national health insurance program is the cooperation and enthusiasm of those most directly involved in providing health care — the physicians and the hospitals. While our legislation builds upon the Federal government's experience in financing health care, it also recognizes the importance of the private sector. A meaningful role in national health insurance is provided for the private health insurance industry. And the independence of the medical profession is preserved.

For more and more Americans health care is a problem. You don't have to be poor to be staggered by health costs. Almost anyone can find his life savings depleted, his house sold out from under him, educational opportunities for his children lost, all because of major illness or injury.

Low-income individuals are hurt most of all, but middle class Americans can be financially destroyed almost as easily. In summary, our legislation includes three parts.

Title I protects all Americans against the large or catastrophic costs associated with prolonged illness, disease or injury. In effect, it places a ceiling on almost every American family's medical costs. We have an obligation to assure that no one goes into bankruptcy because of prolonged illness or injury. Under this Title a family's medical costs would be assumed by the social security fund once it had incurred 60 days of hospital costs and/or $2,000 of medical bills.

Title II establishes a Medical Assistance Plan with a uniform national program of medical benefits for low-income persons. It replaces the costly inefficient and inadequate federal-state Medicaid programs and provides health protection for 34 million Americans, including 12 million working poor persons who were ineligible for Medicaid. The coverage of this plan would provide basic benefits to mesh with the catastrophic program. That is, this program would pay for the first $2,000 and 60 days of hospital and the catastrophic plan would assume costs above those limits. By requiring the states to pay only what they paid for Medicaid in the years prior to enactment, states will save millions of dollars. Without this bill their costs would have continued to climb.

Title III of this bill makes it possible for any other American not eligible for the low-income plan to purchase at a reasonable price a private insurance policy. It sets standards for these policies to assure that they mesh with the catastrophic program. Insurers who elect to participate in this program and whose policies meet the basic standards set in this bill would be eligible to have their policies certified as meeting the proper standards. The Secretary of HEW would study the operation of this Title for three years to see if this insurance was being made available. Any insurer not meeting the standards after three years would be ineligible to serve as a Medicare carrier or intermediary.

Title I: Catastrophic Health Insurance Program

The catastrophic health insurance proposal provides health insurance once a family has incurred $2,000 of medical costs or 60 days of hospital coverage.

It is intended to supplement private health insurance which many Americans have today in one form or another. For those who do not have such basic coverage, a second title provides coverage for the poor and a third title in the bill would make available to everyone a private health insurance policy at reasonable cost.

The catastrophic insurance title is modelled on the Medicare experience.

Basically, the bill would provide protection to all those who are currently and fully insured under social security, their spouses and dependents, and to all social security beneficiaries.

In mid-1973 the Editor requested both Senator Abraham Ribicoff and Senator Lowell Weicker to write an article specifically for Connecticut Medicine related to health from their viewpoint as U.S. Senators. Senator Weicker has stated that he will do so in the near future.

This very broad coverage includes about 95 per cent of all persons in the United States, and the vast majority of those not covered are federal, state and local employees. Federal employees are eligible for major medical catastrophic protection under the Federal Employees Health Benefit Act, and state and local employees could buy into the catastrophic program established under this bill.

The catastrophic health insurance proposal contains deductibles of $2,000 per family for physician's benefits and 60 days hospitalization deductible per individual for hospitalization benefits. In other words, benefits would be payable for a family's medical bills beyond $2,000 and hospitalization would be covered from the 61st day of an individual's hospitalization. After the deductibles have been met, benefits will be payable as under Medicare, which calls for a coinsurance payment of 20 per cent on medical bills and $17.50 per day for hospital coverage. These coinsurance payments would be limited to a maximum of $1,000 at which point no further coinsurance would be charged.

The types of services covered under the catastrophic plan would be similar to those currently covered under parts A and B of Medicare except that there would be no limitation on hospital days or home health visits. Present Medicare part A coverage includes 90 days of hospital care, 100 days of post-hospital extended care, and 100 home health visits. Present part B coverage includes physician's services, laboratory and X-ray services, physical therapy services and other medical and health items and services. Unlike Medicare which provides basic insurance coverage, people would be responsible for payment of the first 60 days of hospital care and first $2,000 in medical expenses in a year.

Families could insure themselves through the use of present private health insurance arrangements against their basic health care costs, including the first 60 days of hospitalization and the first $2,000 of medical bills. For those families without the resources to obtain this private health insurance coverage, I believe the federal government should play a role in assuring availability of such basic coverage, as we already do for many of the poor through Medicaid. Title II of the bill assures this basic coverage for the poor and Title III provides it for the non-poor.

The catastrophic program would be administered along with Medicare by the Social Security Administration, and it would incorporate all of Medicare's quality, cost and utilization controls.

The cost of the catastrophic proposal, estimated at $3.6 billion, would be borne by the social security system (.3% on employees and .3% on employers). Almost immediately it would provide help for a million families and security for all other families against future illnesses and accidents.

Title II: Medical Assistance Plan

While Title I protects virtually all Americans against medical costs above $2,000 in medical bills and 60 days of hospital care, most Americans cannot even afford to spend those amounts. Titles II and III address themselves to this problem.

For low-income Americans the problem of paying for medical care is especially acute. While approximately three quarters of the American people are covered by some form of health insurance, the poor and the minority groups are less likely to have health insurance. Slightly less than half of those white Americans with incomes under $5,000 and slightly more than one-third of the minority race population with incomes under $5,000 have insurance. But 90 per cent of the white population and 86.9 per cent of the minority population over $10,000 in income have insurance.

The chart (next page) based on a survey by the National Center for Health Statistics illustrates the point.

Even these figures tend to exaggerate insurance protection. They are limited to hospital protection. Even fewer people have insurance to protect against the costs of physician services, X-ray, laboratory and other services. And they don't take into account the fact that most insurance coverage is subject to deductibles and copayments. As a result, health insurance met only 42 percent of all health care costs in 1971.

Title II of the bill would establish a medical assistance plan, effective July 1, 1975 for low-income individuals and families. The plan would provide federally administered basic health benefits coverage with uniform national eligibility standards.

The basic benefits provided under the plan are designed to mesh with those under the catastrophic health insurance plan. It is aimed in large part at providing coverage to low-income working individuals and families, in addition to replacing the current Medicaid program. This means that some 34 million Americans, including 12 million working poor not now covered by Medicaid, would have health insurance protection. It would eliminate the present inequities in Medicaid whereby people with the same income and needs are eligible for Medicaid in one state but ineligible in another, as well as the extensive variations in benefits between states. The administration would be more efficient and more adequate both from the provider's side and patient's side. The plan would also result in substantial fiscal relief to state and local governments whose expendi-

PERCENT OF PERSONS UNDER 65 YEARS OF AGE WITH HOSPITAL COVERAGE, BY COLOR, INCOME AND AGE: 1970.

	WHITE			**BLACK AND OTHERS**		
Age	*Under $5,000*	*$5,000-$9,999*	*$10,000 and over*	*Under $5,000*	*$5,000-$9,999*	*$10,000 and over*
			PERCENT			
All ages under 65 years	49.9	81.9	90.3	38.3	70.7	86.9
Under 17 years	37.1	79.6	89.7	31.1	66.0	86.7
17-24 years	59.9	77.1	83.5	49.7	67.2	78.4
25-44 years	47.5	88.5	91.9	42.8	74.6	88.9
45-64 years	57.3	87.3	92.6	43.6	81.0	92.4

tures would be fixed at no higher than what they spent under Medicaid during the year prior to the effective date of this program.

Coverage would be available to all individuals and families having an income at or below the following levels: $2,400 for an individual; $3,600 for a two-person family; $4,200 for a three-person family· $4,800 for a four-person family; and $400 additional for each additional family member.

To be eligible for benefits, persons would have to be resident citizens of the United States or aliens lawfully admitted for permanent residence, or otherwise legally residing in the United States.

Eligible individuals would file an application (or have an application filed in their behalf). Upon approval of an application, each individual would be issued a health benefits eligibility card.

To enhance administrative simplicity, eligibility would be certified on an annual basis with a coverage year generally beginning on April 1, and with the income determinations generally being based upon the previous year's income. Provisions are included to allow entrance into the program, where appropriate, at any point during the year. In such cases, eligibility would be redetermined on the following April 1. In addition, the plan provides for prospective earnings estimates, where appropriate, in determination of eligibility.

Individuals' or families' eligibility would generally continue throughout the coverage year unless their income increased to more than 20 per cent above the eligibility level. In determining eligibility, a family is defined as two or more individuals related by blood, marriage or adoption, and residing in a place maintained by one or more of them as their home. Also, in determining eligibility, income would include both earned and unearned income, including welfare payments, pension or Social Security payments, support and alimony payments, gifts, rents, dividends and interest. The plan includes lesser income limits for Puerto Rico, the Virgin Islands and Guam. Additionally, there would be special rules established by the Secretary to deal with cases where the gross income of an individual or family from a trade is large enough to cause the family not to be regarded as "low income."

The plan contains a "grandfather" provision to guarantee that no current Medicaid recipient would be disadvantaged by this program.

Benefits

The plan would cover medically-necessary inpatient hospital services for up to 60 days during a benefit period, as well as all medically-necessary skilled nursing facility care, intermediate facility care and home health services. Additionally, the plan would cover all medically-necessary and other health services (including physicians' services and laboratory and X-ray services), as well as prenatal and well-baby care, family planning counselling services and supplies and, for children under 18, periodic screening, diagnosis and treatment. Additionally, the plan would make payments for Part B Medicare premiums for eligible individuals.

Mental health care would be covered on an inpatient basis to the extent that it consisted of active care and treatment provided in an accredited medical institution, and outpatient mental health services would be covered without limitation if provided in a qualified community mental health center. Additionally, the plan would cover up to five visits to a psychiatrist, related to "crisis intervention," during any benefit period. Additional visits would be authorized upon a finding that the patient would require institutionalization in the absence of such care or that he would be severely dysfunctional.

For individuals who are also entitled to benefits under the catastrophic health insurance plan, the medical assistance plan would pay any coinsurance required under the catastrophic plan. For persons not eligible for benefits under the catastrophic plan, the medical assistance plan would make payments for benefits covered under the catastrophic plan. The plan would also cover routine immunizations.

Deductibles and Coinsurance

In view of the fact that the medical assistance plan is aimed at providing benefits to individuals and families without adequate resources to purchase medical care, there would generally be no deductibles or coinsurance payments required.

However, to assist in controlling patient-initiated utilization, there would be a $3 per visit copayment for each of the first 10 outpatient physicians' visits per family, but no copayment would be applicable for visits for well-baby care and family planning services.

There would be one other circumstance in which a copayment would be required. This would be applicable in those situations where a person, without dependents, is in a long-term care facility for more than 60 days. In such cases, the individual (usually an elderly person in a nursing home) would retain $50 of his monthly income and any income in excess of $50 would be required as a copayment.

Payments and Administration

Payments made to providers and practitioners under this program would be subject to the same reimbursement, quality, health and safety standards, and utilization controls as are applicable under the Medicare program. Reimbursement controls would limit payments to not more than audited "reasonable costs," to participating institutions and agencies, and "reasonable charges" to practitioners and other suppliers.

Payments made under this program, along with any required copayment, would have to be accepted by providers and practitioners as payment in full for the services rendered, and no person accepting such payment could change amounts in excess of the payment for the individual receiving the service.

Benefits under the program would be residual and amounts payable under this program would be reduced by amounts payable under any other public or private insurance plan under which the individual was covered, with the exception of a state program designed to supplement this program.

In addition, amounts otherwise payable under this program would be reduced by not more than $250 in a benefit period if an eligible employed individual failed to enroll in an employer-sponsored health insurance plan for which the employer paid 75 per cent or more of the premium cost. No employer could exclude an otherwise eligible employee from participation in a health insurance plan solely on account of the employee's eligibility for benefits under the Medical Assistance Plan.

The utilization and quality of services would be reviewed by utilization review committees established in hospitals and skilled nursing facilities, and by the Professional Standards Review Organizations established under Public Law 92-603.

The program utilizes the same administrative mechanisms used for the administration of Medicare, including, where appropriate, Medicare's carriers, intermediaries and public health agencies. The program also would encompass use of Medicare's statutory quality standards, in that the same conditions of participation which apply to institutions participating in Medicare would apply to those institutions participating in this program.

Primary policy and operating and general administrative responsibility for the program is specifically assigned to the Social Security Administration, basically involving personnel and facilities employed in the Bureau of Health Insurance.

Financing

The low-income plan would be financed from general revenues, just as the federal share of the current Medicaid program is now financed, and also with state funds. A medical assistance trust fund would be established to make payments for benefits under the program. The fund would receive appropriations from general revenues and state contributions.

States would contribute a fixed amount which would be equivalent to their total expenditures from state funds under Medicaid for the types of benefits covered under this plan during the year prior to the effective date of this program. Additionally, a state would also pay 50 per cent of the estimated amount that the state and local governments had expended in that same base year for provision of these types of services to people not covered under Medicaid. These persons would, however, be covered under the new plan. State contributions in future years would be limited to the initial contribution amount.

The state contribution would be reduced by an amount equal to one-half the amount expended by the state from non-federal funds in providing types of services not covered under this program, but which could have been matched under the Medicaid program. This provision would encourage states to offer or to continue providing optional services, such as drugs, dental services and eyeglasses.

The additional first full-year federal cost above present Medicaid expenditures is estimated at $5.3 billion.

Conclusion

An estimated 34 million people throughout the United States would be eligible for benefits under this program in any given year, though, of course, not all of these people will receive services in a given year. The current Medicaid program covers some 22 million people. The additional people covered under this new program represent primarily the working poor who, until this time, have been ineligible for federally-supported medical assistance.

Title III: Private Health Insurance Coverage for All

While Title I protects all Americans against extraordinarily high health bills and Title II provides basic health care for low-income families, Title III assures the availability of private health insurance coverage to the rest of the population. Although the private health insurance industry has made strides in recent years in making better insurance protection more widely available to more Americans, more needs to be done to encourage this expansion.

Fully one quarter of the American population still has no hospital insurance protection. Even fewer people have non-hospital protection as the following chart indicates:

	Percent of civilian population covered:
Hospital Care	76.9
Physicians' Services	
Surgical Services	74.2
In-Hospital Visits	72.3
X-ray and Lab	70.7
Office and Home Visits	46.6
Dental Care	7.5
Out-of-Hospital Prescribed Drugs	52.1
Private-duty Nursing	51.0
Visiting Nurse Service	53.6
Nursing Home Care	18.8

For those people not eligible for the low-income plan we propose to assure that a private health insurance policy is available at a reasonable rate to anyone who wishes to purchase it.

Title III therefore describes a model basic private health insurance policy which meshes with the catastrophic program and establishes a mechanism whereby companies can voluntarily have their policies certified by the Secretary of HEW as meeting at least the minimum definition of adequate basic health insurance.

The standards for such a package would include coverage for 60 days of hospital care, $2,000 of medical expenses. Other criteria ban exclusions, waivers of liability and waiting periods in group policies and, with respect to individual policies, limit medical exclusion to pre-existing pregnancy and waiting periods for other pre-existing conditions to not more than 90 days. Additional requirements deal with opportunities for enrollment including at least an annual open enrollment period.

The government-certified policies would have to be sold at reasonable rates. In determining reasonableness the primary factor would be the ratio of benefits paid out to premiums collected.

No one could be denied the opportunity to buy a policy because of pre-existing conditions or because he or she is a bad risk. In order to facilitate the offering of such policies the insurers would be authorized to offer such policies on a "pooled" basis with a proportionate sharing of risks and rewards.

During the first three years of operation of Title III the Secretary of HEW would study the extent to which private health insurance meeting the definition of adequacy is actually and generally available. He would report his findings to Congress.

After that date no company or organization could serve as a Medicare carrier or intermediary unless it offered a policy certified by the Secretary as meeting the model definition.

This Title, then, would encourage private health insurers to upgrade their coverage and to guarantee a reasonable pay-out ratio, thus making available better private health insurance to the average person.

And it would provide the Congress in three years with an accurate picture of the extent to which private health insurance is providing adequate coverage to the general population.

The private health insurance industry will have a real incentive and real standards toward which they can work in meeting the needs of the majority of the population who are presently covered for better or worse under private health insurance.

Title III is a means of saying to the broad population that it is our expectation and hope that private health insurance will provide the opportunity to secure insurance coverage for the *first* 60 days of hospitalization and the *first* $2,000 of medical expenses, after which the government catastrophic health insurance program would take over.

Summary

I believe that this legislation is a major step in protecting all Americans against rising health costs. It puts a ceiling on every American's medical bills, assures health protection to those who can't afford it and encourages the private health insurance industry to make available the best possible policies at reasonable rates. At the same time it allows employees the flexibility necessary to bargain with their employers for broad health care protection.

We can wait no longer to reform our health care system. We have the opportunity today to make health care a right for all Americans — not just a privilege for the few.

The Chairman of the Finance Committee has assured me that hearings will be held on health insurance in the spring of 1974. Between now and then we will be analyzing and improving our bill. We look forward to hearing from you in the months ahead — with your advice and criticism.

A Comprehensive Plan for Psychiatric Services for the Capital Region

**James C. Healey, M.D., F.A.P.A., Kenneth Bull, M.D., M.Sc.,
Nelda Severin, R.N., M.S.N. and Mrs. Cornelia T. Johnson**

ABSTRACT — This article describes briefly a practical plan which can be easily implemented in stages, converting the present fragmented capital region psychiatric services into an efficient, accessible system, which can bring the benefits of modern psychiatry to ordinary citizens. It provides for a synergistic system, combining public and private sectors. The Capital Mental Health Planning Region consists of 29 towns and approximately 670,000 people.

In recent years there has been a move towards the establishment of "mental health centers" throughout the country. The reason for this trend and the defining requisites of the centers are well known to the psychiatric community so will not be recapitulated. But the State of Connecticut, perhaps more than any other, has seemingly been reluctant to follow this trend.

That is not to say that no progress has been made. For example, The New Haven Mental Health Center was opened in 1966 financed by state and federal money and operated by the Yale Department of Psychiatry. Although new models of service were conceptualized they do not seem to have developed or have failed. For example, the day hospital program has been closed. And unfortunately state hospital admissions of people within the area actually increased rather than decreased. Several difficulties may account for this failure: for example, there is no designated catchment area for which the center is responsible and there has been a strong academic rather than service flavor.

Similarly other programs have been initiated with similar lack of impact. In 1967, Undercliff opened for psychiatric services for a four town region financed directly and completely by the Department of Mental Health. Underutilization, at least of the beds, was commented on by the Etherington Report. In Stamford the department supported the local general hospital in its application for a federal staffing grant, and three state agencies were involved in the development of a mental health center to serve a four town catchment area (these state facilities include a day treatment center, the local alcohol and drug clinic, and the state hospital serving that area.) The staffing grant has been mainly used to open an inpatient ward in the general hospital.

Two recent plans have been announced. In Bridgeport the state has built an eight-story mental health center next to the general hospital. This center will have a definite catchment area of five towns, and will be the sole provider of state services for this area. Financing will be either direct state or a federal staffing grant. And in Hartford, a plan was developed by the former commissioner, to build the last of the directly supported mental health centers to serve 29 towns and a population of approximately 670,000. Plans had been drawn up for a building similar in scope and size to those in Bridgeport and New Haven and to serve the capital region. There has been some reconsideration about the number of beds actually needed, and some scaling down considered, from the original 150 (Bridgeport has 100, Stamford 20, and New Haven 66).

Present services for the capital region include the capitol unit at the Norwich State Hospital (approximately 250 beds), the Institute of Living (approximately 200 beds), and two general hospital wards (80), McCook Hospital (23), and Manchester (7).

Although this means beds are available to the area, in effect the great majority of treatment available is for the wealthy (Institute of Living) and middle class well-behaved, but little is locally available

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JAMES C. HEALEY, M.D. F.A.P.A. Assistant Professor, University of Connecticut, School of Medicine, Department of Psychiatry, U-Conn. Health Center, Hartford, Conn. Chief Consultant to the Connecticut Department of Mental Health for Hartford Mental Health Center Development. Formerly Director of the Dubois Center, Stamford, Conn.

KENNETH BULL, M.D. M.Sc. Assistant Professor, University of Connecticut, School of Medicine, Department of Psychiatry, U-Conn. Health Center, Hartford, Conn.

NELDA SEVERIN, R.N., M.S.N. Psychiatric Nurse Clinician, University of Connecticut, School of Medicine, Department of Psychiatry, U-Conn. Health Center, Hartford, Conn.

MRS. CORNELIA T. JOHNSON, Formerly Community Organizer, University of Connecticut, School of Medicine, Department of Psychiatry, U-Conn. Health Center, Hartford, Conn. Presently, Family Service Worker, Community Life Association, Greater Hartford Process, South Arsenal Neighborhood Development, Hartford, Conn.

for the blue-collar worker, the indigent, or those seen as severely disturbed (i.e, those thought to be suicidal or showing bizarre behavior). Similarly no inpatient facility is locally available for those of the middle class who require treatment beyond their insurance coverage, those requiring evaluations for the court, drug and alcohol abusers,* disturbed mental retardates, or geriatric patients not fortunate enough to find admittance to nursing or convalescent homes. For these patients most treatment is provided at Norwich, fifty miles away, beyond the reach of private doctor, relatives, and community social and vocational rehabilitative services. The principle of continuity of care is obviously unapproachable.

The senior author was asked, in July 1972, to formulate a reasonable plan for the operation of the proposed capital mental health center. Because there has been such difficulty over the years in establishing such an operation, it being something of a political football, the result is not meant as a final blueprint, but rather as the initial step in the long process of getting the community into action. Instead of a static mental health center housed in one structure, operating very much in isolation from the community and other agencies, a somewhat unique plan combining public and private sectors, with an emphasis on in-the-community out-patient treatment has evolved.

The basic philosophy behind the plan as developed is threefold. Firstly, is the widely accepted view that medical treatment of all kinds and varieties, including psychiatry, is a basic human right which should not be dependent on the person's financial, ethnic or religious situation. Secondly, is the fact that we have at hand in 1973, all the technology, all the know-how, to treat all psychiatric and social emergency crisis situations in the person's own home community. These, of course, include the short-term acute psychiatric bed in a general hospital, the halfway house, the group home, the day treatment center, sheltered workshop, the outpatient clinic treatment and last, but possibly most important, emergency or crisis intervention capability. Thirdly, is the fact that there is no real shortage of financial base for these activities and particularly not in a wealthy state such as Connecticut. The point in case in our Metropolitan Hartford Region which encompasses upwards of 650,000 people in 29 towns is that the state is already spending 8 to 10 million dollars for capitol region patients in the archaic outmoded bankrupt state hospital system. If we accrue to this figure the sum that can be synergistically released by proper interdigitation of services, thus cutting down on expensive bed care, outpatient care and use of manpower resources in a more efficient way, we would have more than enough money to finance the operations.

The plan itself is relatively simple with two basic components, an emergency and crisis service and a service for the chronic patient: for the first, a psychiatric evaluation and assessment unit (EAU) would be developed. The EAU would be the recipient of all the psychiatric emergencies in the Greater Hartford Capital Region, available to all people and agencies, with the definite intent of managing these crises and emergent situations in such a way that admission to the state hospital is avoided. It is helpful to conceptualize this unit as a "very good emergency room" with the option of holding patients for short periods of time so that sensible decisions and sensible dispositions can be made with sufficient security the EAU could also provide short-term assessment of court related cases now handled in the state hospital.

The unit would have adequate staff, space and ongoing contracts with agencies and institutions, including the general hospital psychiatric units, who provide inpatient care and other varieties of psychiatric care in the community. It would operate on a 24-hour, 7-day, a week, basis, with a capacity to serve or to deal with some 3,500 - 5,000 crisis situations a year. This capacity converts to approximately ten interventions "in process" in any one time. If it be determined that the number of crises goes over 5,000 a year then it would be quite feasible to split this operation in two, making it even more accessible to the people in the area. Some might question the feasibility and/or ability of handling severely agitated patients in the same setting serving as an evaluative and short-term treatment center, but our own experience in utilizing the University of Connecticut, McCook Inpatient Psychiatric Unit in essentially this manner, indicates this can be very effective. (Bull, et al., 1973).

An essential part of this unit, of course, is the contract with the short-term acute psychiatric beds in the area general hospitals for all patients who are unable to pay. The number of general hospital acute psychiatric beds in the Greater Hartford Capital Region exceeds 120, and with proper management these would suffice. Once a patient is admitted to the psychiatric unit of the general hospital he would, of course, be followed up in the outpatient department of that hospital, unless taken care of

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As is well known, the state-run Blue Hills Program is available, but in practice because of restricted hours and days for admission and admission criteria, many patients cannot gain admittance.

privately. There would be a need in this plan to subsidize the outpatient clinics and day program functions of the hospitals so that inpatients could easily be transferred to day-care or outpatient status. Perhaps rather than subsidizing "beds," the number of patients and the actual treatment, whether inpatient or outpatient could be the basis of renumeration. Patients could, of course, still be admitted directly into those general hospital beds and the system essentially remains on an open one.

Working in conjunction with the EAU would be a series of approximately 16 neighborhood centers located in neighborhoods of somewhere between 10,000 and 50,000 people, according to the density of the population and the statistically determined occurrence rates of psychiatric disorders. Emphasis in these centers would be based on easy access, provision of all ambulatory services outside the hospital bed, continuity of service to clients and accountability to the immediate neighborhood that the center is serving through a consumer board. Thus the centers would also serve some "chronic" functions as well.

In conjunction with the centers about ten group homes would be established for approximately 150 to 200 patients who have been chronically institutionalized in the state hospital. The group homes would have to be carefully supervised so that the people living in them would have access to sheltered workshops, day hospitals and other treatment agencies, and not simply be left to sit staring at the TV or the wall, as they are now in so many nursing homes or back in the state hospitals. Experience in Illinois, Michigan and California indicates that the great majority of these patients can be adequately handled in such homes in the community with an appropriate support system, if the motivation to do so were strong enough. In fact, Illinois, like the study cited above, (Bull et. al, 1973) has for five years successfully stopped all admissions to the state hospital.

The neighborhood centers would have their own backup unit, the intermediate length unit (ILU), which would be a small heavily staffed psychiatric unit which would provide all the acute backup bed care for all the patients being taken care of who are classified as chronic ambulatory patients. The definition of "chronic" patient is, of course, a difficult one. One of the understandable tendencies on the part of the private hospitals participating in the plan may be to seek admission of patients on their wards into the ILU. Perhaps a minimum of 6 weeks hospitalization could be required before transfer could occur except, of course, for unusual negotiated situations. The ILU would also initially serve a triage function for those currently occupying chronic beds in the state hospital.

Other components of this plan would include the Regional Geriatric Psychiatric Service, probably based with a special geriatric assessment unit and, also, a Children's Regional Program. The other large component of service is the regional Alcohol Services, and the plan for the implementation of an Acute Detoxification Service is already under way in the area, with linkage to all the other alcohol treatment services.

The annual budget of the system would include $2,500,000 for the EAU and the contract with the general hospitals and subsidy of their outpatient departments, $500,000 for ILU and $3,500,000 for the neighborhood service centers plus approximately $250,000 for the support of the regional alcohol service, for a total of $6,750,000. This compares very favorably, of course, with the present State Department of Mental Health's annual outlay of $8,000,000-$10,000,000 not taking into account other sources of revenue such as direct payments, third party or welfare.

On the face of it, it might appear that the offering of new services might produce greater demand. However, we believe that the synergy in the system would lead to a greater utilization of all the beds and other services in the region.

The last and most important issue is who will sponsor and support the operation which we feel has to be a nonprofit corporation. It seems as there are a number of possibilities. One vehicle that has been considered is the Combined Hospital Board, which is currently starting a detox program. At present they feel that they have their hands full without taking on this major task. Another possibility is that the University Health Center organize a community psychiatric division, funded through the Department of Mental Health and thus assume the responsibilities of organizing and delivering the services. This again is seen to be an outside possibility at the present time, owing to the present philosophy of the medical school, in that they don't see service as their primary task and that they will be heavily occupied the next year in situating themselves in their new building in Farmington.

Another possibility is that this work be carried on under the Comprehensive Health Planning Organization (B Agency). Another possibility is that one of the local general hospitals becomes the major component in this plan with affiliations with the other general hospitals. The other possibility is that the City Council could form a nonprofit corporation to operate the services for the City of Hartford and on contract for the other towns in the catchment area.

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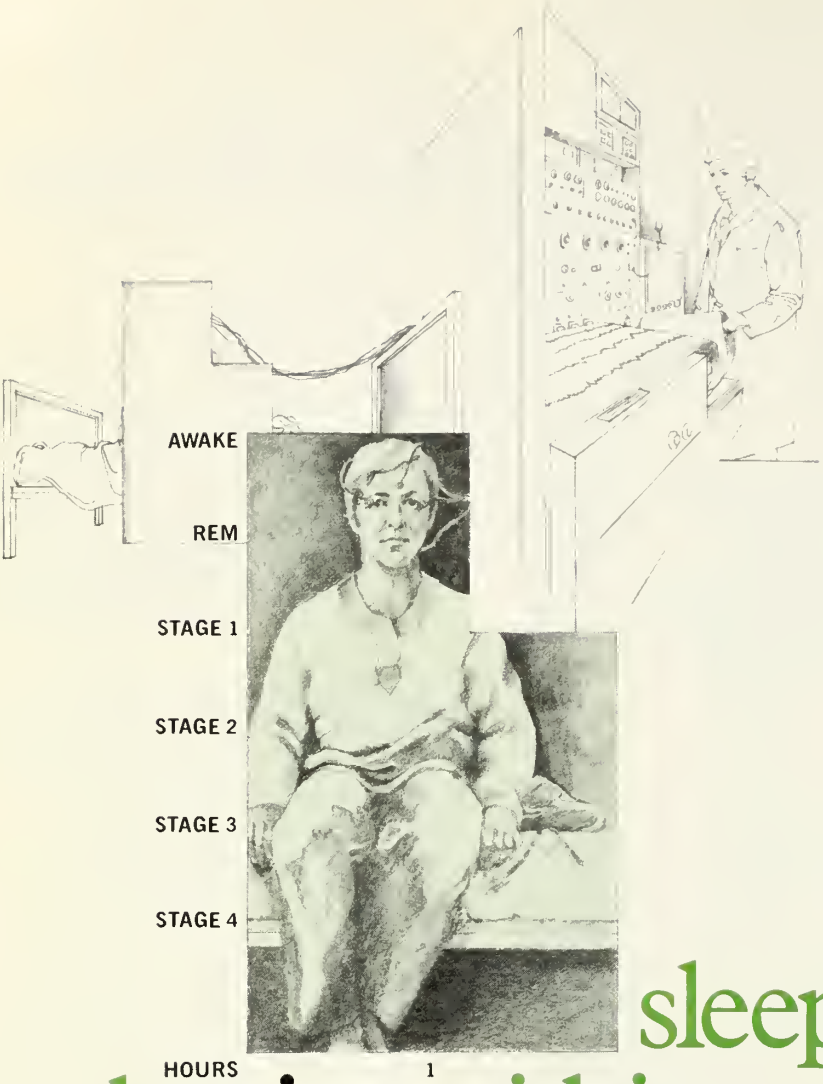

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Professional Negligence in Hospital Emergency Rooms

Less than a generation ago, an emergency room—if, indeed, a hospital maintained such a place at all—was literally just what the term connotes: a place where accident victims and the indigent were brought, usually by ambulance or police car. A number of the largest hospitals did not maintain an emergency room at all.

But with the disinclination of many doctors in New York City, after a busy day at work, to accept night calls, particularly from people unknown to them, practically every hospital has set up an emergency department which is now a major part of the institution. Many of these are models of everything that an admitting department of a hospital should be. At New York Hospital, for instance, a number of doctors in every specialty are on call day and night. The apprehensive patient is immediately taken to a separate room and, if necessary, put to bed at once. There is no waiting with scores of other patients to receive treatment. The patient is soon visited by a doctor, and a corps of ancillary personnel, such as nurses, x-ray technicians, etc., are available.

Lasagna in his book *Life, Death and the Doctor* (New York: Alfred A. Knopf, Inc., 1968, p 46), notes:

> Some hospitals have had a 500% increase in emergency room traffic since World War II, with a change in the nature of the visits from true emergencies to a more less representative cross section of complaints, many of them chronic in nature.

Many people in New York City who, when they are first taken ill, go to the emergency room of a hospital, such as New York Hospital, and meanwhile, make arrangements to get in touch with their own physician if, indeed, they have one. A substantial percentage of the city physicians live in suburban communities and would find it extremely difficult to take care of an emergency immediately, although some have doctors substituting for them who are available in emergencies. A very large percentage of New York City residents have no personal physician.

In Binghamton, New York, at the large city hospital, there is a group of doctors who, on a contractual basis, staff the emergency room day and night. In some of the smaller communities it has been necessary to rotate all doctors on the staff to man the emergency room. This has led to the complaint by some specialists that they are not equipped to manage the wide range of traumatic injuries presented. However, there is a consensus that each must take his turn, so that a doctor, instead of a nurse, appraises the situation and, if necessary, calls for help.

All of what I have said is a great oversimplification of the problem. Certainly, it is a far cry from the day when, in one neighborhood where much violence occurred, the emergency room of the city hospital was called "The Bucket of Blood." Some of the finest emergency rooms are located in neighborhoods with all the violence and crime that produce multiple, serious injuries.

Both the medical profession and the hospital must share responsibility for the initial diagnosis and treatment, leading to a decision by some member of the staff as to whether the patient should be admitted or allowed to leave. I intend to point out some of the dangers involved. A brief review of some of our experiences in New York state will show that there is a considerable amount of emergency room professional negligence litigation.

Patient Left Unattended on Table

There is mentioned in 72 American Law Reports, 2d 397, in introductory remarks in the section entitled "Hospital's Liability as to Diagnosis and Care of Patients Brought to Emergency Ward," the following New York Case:

> A judgment for plaintiff was affirmed in *Petry vs Nassau Hospital* (1944) . . . 48 NYS2d 277, . . . app den 50 NYS2d 173, an action to recover damages for personal injuries suffered by plaintiff's decedent when she was placed on an examination table 2½ to 3 feet wide and 6 feet long in the emergency room of defendant hospital, and fell from the table, which was without sides, when left unattended by the nurse in charge.

Casual Treatment Hazardous

Then followed a significant New York case *O'Neill vs Montefiore Hospital* decided by the Appellate Division, First Department, June, 1960, cited as 202 NYS 2d 436. This was an action brought against a physician and a hospital.

John O'Neill died of a heart attack on the morning of June 29, 1952. His widow brought an action against the hospital for failure to render necessary emergency treatment and against a physician for his failure and refusal to treat the deceased. The complaint was dismissed in the trial court. The Appellate Division reversed the dismissal and sent the case back for a new trial against both the physician and the hospital. Rather than re-try the case, the hospital paid $45,000 in settlement, and $20,000 was paid on behalf of the doctor. This case is a warning to hospitals that casual treatment of emergency room patients presents a real hazard.

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Failure to Make X-ray Film in Vomiting Accident Victim

Another case involving a physician and a hospital arose in June of 1962, on the evening when a 5-year-old accident victim was brought to the hospital. On that evening a party was being held for the interns and residents. The usually well-staffed emergency room was stripped down to one doctor and a nurse, plus a clerk who took the original admission history.

The youngster had been brushed and knocked down by a car as he was running across the street, and he kept running to his home, which was nearby. The mother was asked by the clerk to fill out a history of the accident and what complaints the child had. The mother wrote down that the boy's arm bothered him and showed bruises.

The clerk testified that after the mother had filled in and signed the history form, she said to the clerk: "Miss, would you put 'head' on that paper?" The clerk then was asked by plaintiff's counsel:

> *Q.* Had the boy vomited before you took this sheet into the doctor?
>
> *A.* Yes.

The doctor said that when he first examined the boy, he didn't see anything wrong except an abrasion of the shoulder, but then in his examination before the trial he said he told the mother, "I couldn't find anything seriously wrong with the child after examining him"; that, however, one never knew about these things. A car accident could result in deep injuries which are not detectable at the time; that she should look for certain signs such as dizziness, nausea, vomiting, headache, excessive sleepiness; and should any of these things occur, to bring the child right back.

The doctor was then asked:

> *Q.* Were you aware of the fact that the child had vomited already?
>
> *A.* Yes, it says so in the record here.
>
> *Q.* Well, no, forgetting the record, were you aware of the fact personally?
>
> *A.* Yes, because the child went out, and by the time I came out to speak to the mother he had vomited there. That was the first time he vomited in the emergency room.

He then said he brought the child back and reexamined him thoroughly and found nothing. He said he had seen many children in this age group vomit after this type of trauma. He said he did not record the second examination because it was substantially the same as the first.

The testimony of the nurse revealed that the emergency room was very busy that night, there was a shortage of stretchers, and "nurses were popping in and out." As it turned out, most of the staff was at the party. The testimony showed that the doctor-defendant was very busy that night.

The judge before whom a settlement conference was held said that he was "outraged that this boy came in vomiting after having been hit by a truck and was sent home only to come back in a deep coma and die after a tracheotomy was done."

The autopsy showed a

> Moderate hemorrhage over the left frontal temporal and parietal region. There was a linear fracture of the left frontal parietal temporal region, measuring 6 inches in length. There was an extradural hemorrhage extending over the left frontal parietal lobes laterally composed of clotted blood which weighs 70 gm.

While it is true that signs of an impending mass such as an extradural hemorrhage may come about slowly with no clear suggestion of head injury, an x-ray film should have been taken. Vomiting was a danger sign, although it does not necessarily point to a skull injury. Settlement was effected by a payment of $10,000 on behalf of the carrier for the truck and $7,500 each on behalf of the physician and the hospital.

Release of Patient After Epileptic Seizure

In June 1967, a suit in Bronx County against a large voluntary hospital was settled for $40,000. In that case, the plaintiff, a 42-year-old foreign waiter, had a seizure at work at a midtown hotel. He was unconscious for awhile, and the attack bore a resemblance to a grand mal seizure. A doctor called to the hotel suggested that the patient be sent to the hospital by ambulance. He was unaccompanied and spoke little English, if any.

At the hospital, a rather cursory examination was performed by a first-year resident, and 27 minutes after the patient arrived he was sent on his way with a suggestion that he come back a few days later for tests. He was given diphenylhydantoin to control epileptic attacks. Within a short period after leaving the hospital, he was found beheaded on the tracks of the Lexington Avenue Subway at the 138th Street Station.

The medical picture presented was discussed with a number of experts, all of whom agreed that after an immediate remission of an epileptic seizure the patient is in a condition where he requires observation (Elliott, F.A.: *Clinical Neurology,* New York: Paul B. Hoeber, Inc., 1964). This man who had been unconscious for an interval of about half an hour, should not have been released so soon, and certainly not without someone who understood him accompanying him home. One axiom to be learned from this case is that when a resident sees a patient in the condition that was present here, a medical consultation is called for before the patient is allowed to go home. The aid of an interpreter is also protection. —WILLIAM F. MARTIN, General Counsel, Medical Society of the State of New York.

Reprinted from The Best of Law and Medicine, 89, 90; '68-'70, JAMA.

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Leonard R. Tomat
Assistant Executive Director
Scientific Activities

Summary of Actions
Council Meeting

Thursday, April 18, 1974

I. Attendance

Present in addition to the Chairman, Dr. D. A. Grenson, and the Vice Chairman, Dr. C. W. Johnson, were: Drs. Cramer, Root, Jr., Van Syckle, Backhus, Brandon, Nolan, Granoff, Fabro, Hess, Bradley, Nemoitin, Ragland, Jr., James, Pelz, Krinsky, Dambeck, Roch, Canzonetti, Harkins, Magram, Freedman, Mendillo and Klare.

Also present were: Mrs. Lindquist, Mr. Tomat, Mr. Sweeney, Mr. Olson (FCMA) and Dr. Richards.

Absent were: Drs. Spitz, Gardner, Hecklau, Kamens, Rubinow, Barrett and Hastings.

II. Routine Business

Approval of Minutes

As published and distributed, it was VOTED to approve the minutes of the meeting of March 21, 1974.

Life Memberships

It was VOTED to approve applications for Life Membership received from the following eligible Active Members:

Samuel H. Cohn, 111 Pearl Street, Hartford (H) — 1/1/74.
Francis J. Comelio, 45 Elm Street, Winsted (L) — 1/1/74.
Louis A. Giuliano, 111 East Avenue, Norwalk (F) — 1/1/74.
Theodore G. Klumpp, 90 Park Avenue, New York (NH) — 1/1/74.
David A. Poverman, 67 Trumbull Street, New Haven (NH) — 1/1/74.

Date of Next Meeting

The organizational meeting of the Council for 1974-75 has been called by the incoming President, James H. Root, Jr., for Wednesday, May 15, 1974.

III. Old, New and Special Business

Appointments

Committee on Peer Review Systems: It was VOTED to appoint Stewart A. King, Stamford, to membership on the Committee.

Communication from HCMA re "Placemat Program"

It was VOTED to accept for filing a communication received from the HCMA Board of Directors which asked the Council to give further consideration to the merits of the restaurant placemats (CSMS seal and information about the Society and health facts about Connecticut) program which had been approved for implementation at the meeting of 1/17/74. After extended pro and con discussion, it was VOTED to rescind the Council's previous action and to discontinue implementation of the placemat program. It was further VOTED to convey to the Committee on Public Relations the sense of the Council's discussion which preceded the rescinding action.

Communication — Board of Governors, NHCMA

It was VOTED to accept for filing a communication received from the NHCMA Board of Governors which apprised the Council of actions taken by the Board in the matter of the $150 annual license registration fee for physicians and to protest the continuation of Phase 4 controls on physicians' charges under the Economic Stabilization Act. Noting that, in the latter instance, the Society had also voiced strong protest on Phase 4 regulations to the Congressional committees holding hearings on the subject, and that the ESA will expire on April 30, the Council concluded that no further action was called for in this regard.

Concerning the current unjustifiable M.D. license registration fee, actions were taken as follows:

(a) It was VOTED to urge the component County Medical Associations, organizationally and through member participation, to take action (letters to legislators) to seek an appropriate reduction in the amount of the registration fee.

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PHYSICIAN PLACEMENT SERVICE

The Connecticut State Medical Society maintains a placement service for the convenience of Connecticut physicians, hospitals and or communities in search of candidates for positions available in our state. A description of such opportunities should be forwarded to the Physician Placement Service, 160 St. Ronan Street, New Haven, Connecticut 06511. (203-865-0587).

Physicians wishing to locate in Connecticut are invited to submit a resume to be kept on file with the Physician Placement Service. Candidates are requested to inform the Society when they are no longer available for consideration for opportunities which might be available in Connecticut.

Journal announcements under "Placement Wanted" or "Placement Opportunities" will now be processed as classified advertisements. Anyone wishing to place such an announcement must submit copy by the first of the month, two months before the month of issue.

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(b) It was VOTED to recommend to the House of Delegates on April 30, 1974 that an action be taken to advocate the continuation of efforts by the Society, the component County Associations and the membership directed toward reduction of the present unjustifiable registration fee to a level commensurate with the costs of administering the registration bureau.

(c) It was VOTED to direct Staff to communicate with other professional organizations whose members have had similarly unjustified registration fee increases imposed on them by the (1972) General Assembly, to determine the attitudes of those organizations and their members toward the fee and whether they are considering taking action to seek a reduction.

Report of the Judicial Committee re Disciplinary Procedures

It was VOTED to accept for filing a report of the Committee which proposed that a series of amendments to the Bylaws be initiated which would clarify, streamline, etc., the present Bylaw provisions that cover the procedures to be followed by the Committee in hearing appeals on matters of discipline.

After a lengthy period devoted to discussing the Committee's report, and voting to approve several amendments to the amendments recommended by the Committee, it was concluded that it would not be possible to file a definitive subject report with the House of Delegates on April 30 for tabling and subsequent action at the 1974 semi-annual meeting of the House. Instead, it was VOTED to transmit to the House of Delegates the Council's "statement of intention" to amend the Bylaws "along the lines" recommended by the Judicial Committee, accompanied by the Committee's subject report as information, with the recommendation that the statement of intent and the Committee's report be placed on the table until the 1974 semi-annual meeting of the House at which time a definitive report will have been published in the Journal and be made available to the House for consideration and action.

Report — Meeting of CSMS Representatives with Senator Ribicoff

It was VOTED to accept for filing a written report on this meeting (4/6/74) submitted by Leonard Flom, Fairfield, chairman of the Committee on National Legislation, and supplementary oral reports given by Jerome K. Freedman and Morris A. Granoff, New Haven, who participated in the meeting as CSMS representatives.

It was further VOTED to direct CSMS Staff to seek to obtain information regarding fee differentials in various areas of the state, based on Medicare and Medicaid claims, and, if such information is obtainable, to forward it to Senator Ribicoff and his aide, Mr. Geoffrey Peterson.

Reports — Committee on Peer Review Systems

It was VOTED to accept for filing several documents concerning PSRO and the Connecticut Medical Institute as follows: (a) Report by Dr. Kenney on a 3/24/74 meeting held with representatives of HEW and those of the Society and other agencies interested in PSRO and the Institute; (b) A 3/25/74 letter from Dr. Kenney to the President of American Health Systems, Inc. which confirmed a 3/22 telephone conversation held subsequent to a meeting of AHS representatives with Committee members, County Association and Foundation representatives and others; (c) A 4/10/74 letter from the AHS President to Dr. Kenney in response to (b) preceding.

Pursuant to a discussion of the foregoing reports, and on request of the Executive Director, the Council gave consideration to consumating a contract with American Health Systems, Inc. for services already rendered and to be rendered to the Society in developing the Connecticut Medical Institute and assisting local physician groups form PSRO agencies and apply for HEW funding of the development of same. After extended discussion, it was VOTED to adopt a motion as follows: That following review and approval by CSMS legal counsel of a subject contract, and subsequent review and approval by the Council, the President and Treasurer shall sign the contract on behalf of the Society.

At the request of Dr. Kenney, the Council further VOTED to designate its initial five-member component of the Institute's twenty-three Members and Directors as follows:

James H. Root, Jr., Waterbury (NH)
James D. Kenney, New Haven (MH)
Edward A. Kamens, Bridgeport (F)
Andrew J. Canzonetti, Waterbury (H)
Herbert Magram, Middletown (M)

N.B.: The foregoing is a summary of the proceedings and actions of the Council on April 18, 1974. Detailed minutes of the meeting are on file at 160 St. Ronan Street, New Haven, for perusal by any interested member of the Society.

STUDENT MEMBERS

Two student members were elected to the Society:

Benjamin G. Ellenbogen, Two Greenlea Ct., Westport, Conn.
Medical College of Wisconsin — Class of 1977
Pre-Med: University of Wisconsin
Parent: Jack Ellenbogen

Melvyn W. Kramer, M.D., McCook Hospital, Hartford, Conn.
Pre-Med: University of Rochester
Parent: Bernard Kramer

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Mrs. A.W. Thomson, Jr., Middlesex

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Recording Secretary
Mrs. Robert Gillcash, Windham

Corresponding Secretary
Mrs. Herbert Weisberg, New Haven

Treasurer
Mrs. David Peterson, New London

Health Education

The Medical Self-Help Training Program of Hartford County was introduced to her Auxiliary Boardmembers by President Betty Knight who had learned about it at an eastern regional workshop in Cherry Hills, New Jersey. Betty presented enough materials, information, and enthusiasm to inspire one boardmember, Gladys Crawford, to assume the chairmanship of the program and to enroll participants in the first class. The graduates of this first class are now carrying their knowledge and inspiration to other auxiliaries and community organizations.

The Hartford group met on eight consecutive Wednesdays during February and March. Twenty-four Auxiliary members, their children, and invited friends who participated in sessions of special interest to them, were involved in an intensive training course which covered eleven lessons, involving over forty emergency type situations, training people to care for others during a national or natural disaster for short or long periods of time when a physician or other allied medical person would not be available. The class ranged in ages from sixteen to sixty-nine. Pictures of them working together demonstrated the mutual pleasures of being with and learning from people of all ages.

At the beginning of the training course, the instructor advised his eager students to approach the course with a strong feeling for COMMON SENSE. This admonition was repeated throughout the eight weeks assignments. He also relied on his class to correct him if his information on any subject was inaccurate or not up to date. Consequently, the class felt personally responsible for the information disseminated and added to and updated information by describing personal experiences.

There was some discussion about having a physician present for each lesson. The class did not think this either feasible or desirable. However, in planning the lesson on Emergency Childbirth, the instructor obtained the services of an obstetrician. He used an anatomical pelvis as a teaching aid to demonstrate various fetal positions in which a baby might present itself during a delivery.

The entire cost for the first class was $16.53. This money bought notebooks for students, pencils and stationery, stamps and envelopes. The Connecticut State Department of Health supplied films, bandages, splints, and other materials required for demonstrations. Classmembers decided to start collecting supplies to be used as teaching aids for this and future medical self-help programs.

The popularity and purposefulness of this first course is demonstrated by the reactions in the community surrounding Hartford. The Chief of the Emergency Health Services at the Connecticut State Department of Health has urged that the program be publicized by newspaper, television, and radio. A second class of eighteen members was immediately formed and scheduled to start classes at once. Auxilians were asked to present discussions of the program at one of the larger city high schools. Pleased school officials asked them to offer medical self-help classes during the day, and also in the evenings at the school so that parents and children could participate.

After attending the eight sessions, any classmember can become a class instructor and carry the program into other organizations and communities. Thus the old saw of "each one teach one" can be expanded to "each one teach twenty." When Hartford County Health Education Committee Chairman, Gladys Crawford, presented her carefully written report, accompanied by snapshots in color, at the state board meeting, it was decided to make her project one of the major All-Around-the-State-of-Connecticut endeavors during the coming year. Connecticut Auxilians have long believed that health education has been needed, at all age levels, and in every village and town in our state.

In Memoriam

Cole, Clarence H., Yale Medical School, 1932. Dr. Cole was a practicing physician and surgeon in the New Haven area for 30 years before his retirement. He was a member of the staff and former chief of surgery at Waterbury Hospital, and was on the Courtesy Staff at St. Mary's Hospital. He was a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Cole died March 10, 1974, at the age of 68.

Fishman, Ronald L., Temple Medical School, 1953. Dr. Fishman was a practicing internist in the New Haven area since 1954. He was medical director of the Multi Service Clinic in New London, and had been the assistant medical director at Connecticut College in New London. He was a member of the New Haven County Medical Association and the Connecticut State Medical Society. Dr. Fishman died February 10, 1974, at the age of 46.

Pass, Beverly C., Tufts Medical School, 1962. Dr. Pass was a practicing pediatrician in the Litchfield area since 1963. She was a member of the Litchfield County Medical Association and the Connecticut State Medical Society. Dr. Pass died March 22, 1974, at the age of 36.

Pollard, Robert L., Tufts Medical School, 1936. Dr. Pollard was a practicing pediatrician in the New Haven area since 1938. He was a member and past president of the staff of St. Mary's Hospital and past president of the Waterbury Medical Association. He was also a member of the New Haven County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Pollard died February 8, 1974, at the age of 71.

Reidy, Maurice J., St. Louis University, 1942. Dr. Reidy was a practicing surgeon in the Litchfield area since 1942. He was a general surgeon on the St. Francis Hospital Staff and was state surgeon general from 1967 to 1971. He was a member of the Litchfield County Medical Association and the Connecticut State Medical Society. Dr. Reidy died March 22, 1974, at the age of 57.

Russo, Neil, Georgetown Medical School, 1951. Dr. Russo was a practicing physician and general surgeon in the Litchfield area since 1952. He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Russo died March 18, 1974, at the age of 56.

Sewall, Sydney, University of Maryland, 1937. Dr. Sewall was a practicing orthopedic surgeon in the Hartford area since 1937. He was past president of the Alumni Association of the Hospital for Joint Diseases in New York City, and was a member of the Hartford County Medical Association, the Connecticut State Medical Society and the American Medical Association. Dr. Sewall died February 27, 1974, at the age of 61.

Tortolani, Aresto P., McGill University, 1934. Dr. Tortolani was a former medical examiner and health director in Plainville and an honorary staff member at New Britain General Hospital. He was a member of the Hartford County Medical Association and the Connecticut State Medical Society. Dr. Tortolani died February 16, 1974, at the age of 68.

DEPRESSION RESEARCH UNIT ACCEPTING PATIENTS

The Connecticut Mental Health Center includes as one of its components the Depression Research Unit at 100 Park Street, New Haven, established for the study and outpatient treatment of depression in men and women between the ages of 18 and 65. The current treatment program is aimed at determining appropriate pharmacotherapy for depression and anxiety.

Appropriate referrals for treatment are patients with manifestations of depression such as depressed mood; sleep disorder; appetite disturbance; alteration in sexual functioning; lack of energy and drive. Since well-known drugs are administered, the primary exclusions are only patients with serious medical problems or addictions; women who are pregnant or breast feeding; or patients who have received electroconvulsive treatment within the last six months.

Treatment is provided by a staff psychiatrist and consists of a four-week double blind administration of either amitriptyline alone, perphenazine alone, or a combination of both, along with supportive psychotherapy. At the end of this period, the Unit staff discusses the patient's progress with the referring physician and helps arrange appropriate further treatment if this is indicated.

Physicians interested in making referrals should call the Depression Research Unit at 772-3300, Extension 341, Monday to Friday, from nine o'clock to five o'clock. Appointments are made promptly and treatment is free of charge.

MEDI-SCAN Q&A

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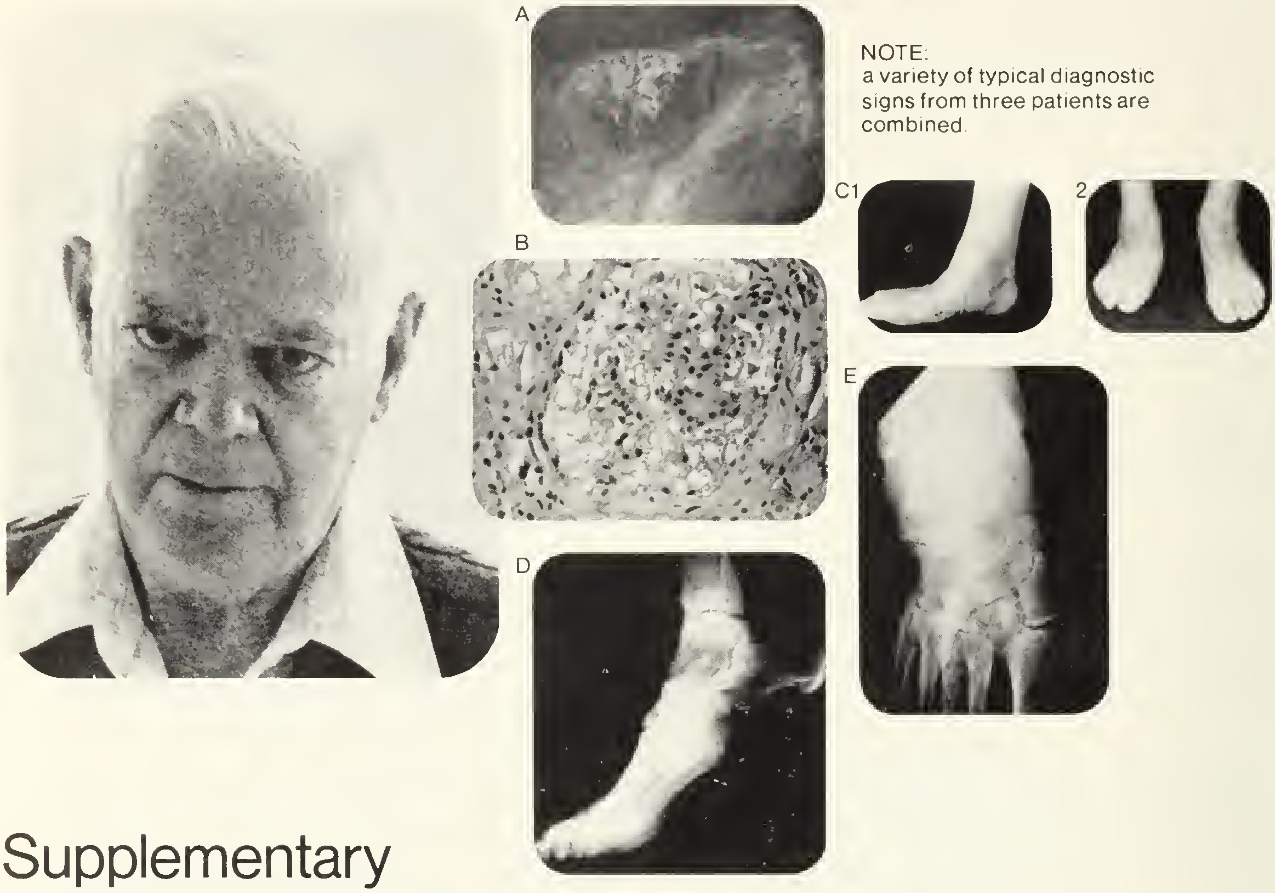

NOTE:
a variety of typical diagnostic signs from three patients are combined.

Supplementary Vitamins in Chronic Disease Therapy

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DIAGNOSIS: Certain manifestations of diabetes mellitus are revealed in these photographs: (A) fundus shows neovascularization and marked retinal scarring (male, age 23); (B) biopsy of kidney shows early diabetic intercapillary glomerulosclerosis (male, age 35); (C) photos 1 & 2 show edema and loss of the plantar arch (female, age 59); (D) lateral x-ray (same patient) shows dropped arch and hypertrophic and destructive changes of tarsal and metatarsal joints (Charcot's arthropathy); (E) AP confirms hypertrophic and destructive changes in (D).

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Patient Educational Aids in Cardiovascular Diseases

Martin Duke, M.D.

It should be appreciated by physicians that patients who are well informed about their cardiac problem can be a positive force in improving their own management and care. At times, however, communication between physician and patient may fail either because of lack of physician time or interest, inability of a physician to explain a problem clearly, or failure of a patient to comprehend in spite of the physician's best efforts. Due to initial confusion or surprise about an unsuspected cardiovascular ailment, repeated explanations are often necessary in order to reinforce a patient's understanding of a problem.

One method by which physician-patient communication may be improved is with the use of instructional aids to educate patients about their heart or vascular problems. Physicians have often not taken full advantage of this well written and prepared information, possibly at times because of lack of awareness of its existence. Under these circumstances, patients attempt to seek out information themselves, and in so doing may obtain advice inappropriate to their particular problem. This could be anxiety producing, and in the context of a patient with heart disease, may actually be harmful.

It necessarily follows that physicians should be well aware of the contents of this educational material in order to be assured that the information is appropriate to the condition being treated, and in order to be able to respond to additional questions that may arise from the patient. It should be realized, however, that explanatory texts and other material are only aids to enhance and improve patient care, and are not substitutes for direct physician-patient contact and discussion.

Patient educational and instructional material in cardiovascular diseases may be readily obtained from various sources including the American Heart Association or its local state and regional affiliates, pharmaceutical concerns, or commercial companies concerned with books, audiovisual or other educational aids. This material is often available without charge or at nominal expense.

DR. MARTIN DUKE, Director of Medical Education, Chief of Cardiology, Manchester Memorial Hospital, Manchester, Conn.

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Dogs and Cats as Sources of Salmonellosis

A seven month old child with symptoms of acute enteritis was admitted to St. Raphael's Hospital in New Haven on October 10, 1973. Laboratory tests showed an infection with salmonella enteritidis (ser. enteritidis). About a week earlier, the child's mother had seen a starved-looking puppy near her home, eating a pigeon. She decided to take the animal home and care for it. It promptly developed diarrhea; during the following few days its condition became worse and since it defecated uncontrollably on the floors of her home, the woman returned the dog to the place where she had found it.

Because of the history of a possible connection between the animal's and the child's infections, stool cultures of dogs in the area were done. The sick puppy was located in the neighborhood where he had been left and an examination of its stools revealed infection with salmonella, enteritidis (ser. enteritidis). The animal died soon after. There were seven other pets in the child's home: four dogs and three cats. All three cats and one dog were found to be infected with the same serotype of salmonella (enteritidis ser. enteritidis). The cats, two of whom had begun to show symptoms, were destroyed and the dog was treated.

A member of the Health Department searched this and other neighborhoods in New Haven for stool specimens of stray dogs and cats and collected 40 samples. All but one of these proved to be negative for salmonella.

Two weeks later, the Health Department received a report that a child aged 13 months was infected with salmonella enteritidis ser. typhimurium. A history regarding animal contacts showed that the family had no pets but that the child had played in the neighbor's yard where rabbits and a dog were kept. Shortly before the child became ill, five of the rabbits had suffered from violent diarrhea and had died. The stools of the remaining rabbits were examined and found to be negative for salmonella. An examination of the feces of the neighbor's dog showed that he was infected with salmonella enteritidis ser. typhimurium, the same serotype as the infected child. The dog appeared to be unaffected by it and healthy.

While much emphasis has been placed on turtles as sources of infections with salmonella, these two cases are reminders that other pets, particularly dogs and cats, are liable to transmit these infections to children.

Hans H. Neumann, M.D.
Director of Preventive Medicine,
New Haven Health Department

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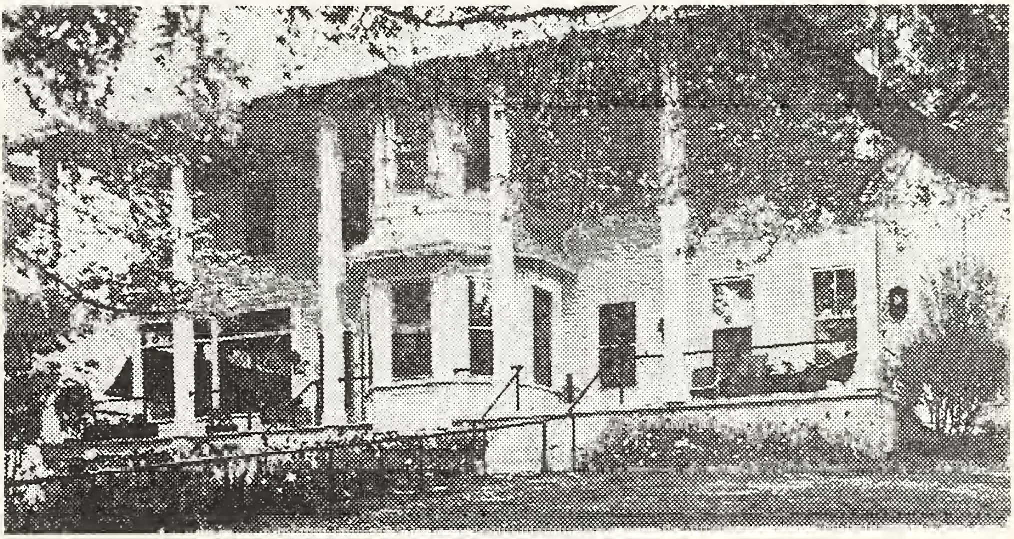

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